

Town of Kittery Town Planning Board Meeting February 11, 2016

Yankee Commons Mobile Home Park Expansion – Final Subdivision Plan Review

Action: Approve or deny plan. Owner/applicant Stephen A. Hynes Real Property Trust Agreement requests consideration of plans for a 78-lot expansion of the Yankee Commons Mobile Home Park for the property located at US Route 1, Tax Map 66, Lot 24 in the Mixed Use (MU) and Residential – Rural (R-RL) Zones. Agent is Thomas Harmon, Civil Consultants.

PROJECT TRACKING

REQ'D	ACTION	COMMENTS	STATUS
YES`	Sketch Plan	2/23/12	Accepted
YES	Site Visit	9/4/12; 6/2/2015 (2 nd visit)	Held
YES	Completeness/Acceptance	8/23/12	Granted
YES	Public Hearing	9/13/12; 6/11/2015 (2 nd hearing scheduled)	Held
YES	Preliminary Plan Review and Approval	9/13/12 mtg continued for addt'l info re: mineral extraction (90 days max) 12/13/12 & 3/14/13 granted 90-day continuance 5/9/13 tabled requested by Applicant 6/13/13 Reconsideration of 9/13/12 decision failed 7/11/13 Board continued for addt'l info re: preparation of findings with Town Attorney 8/8/13 Board continued for CEO's recommendation on a special permit for Mineral/Earth Extraction 9/12/13 Board continued to 9/26/13 meeting due to time constraints and denied preliminary plan approval. 3/11/2015 Superior Court grants Rule 80B appeal to applicant 6/11/2015 Board continued not to exceed 90 days 9/10/2015 Board conditionally approved preliminary plan	Granted
YES	Final Plan Review/Approval	Final Plan Appl. accepted 12/10/15	TBD
TBD	Wetland Alteration		TBD
<p>Applicant: Prior to the signing of the approved Plan any Conditions of Approval related to the Findings of Fact along with waivers and variances (by the BOA) must be placed on the Final Plan and, when applicable, recorded at the York County Registry of Deeds. PLACE THE MAP AND LOT NUMBER IN 1/4" HIGH LETTERS AT LOWER RIGHT BORDER OF ALL PLAN SHEETS. <u>As per Section 16.4.4.13 - Grading/Construction Final Plan Required. - Grading or construction of roads, grading of land or lots, or construction of buildings is prohibited until the original copy of the approved final plan endorsed has been duly recorded in the York County registry of deeds when applicable.</u></p>			

Staff's Comments

BRING PACKET INFORMATION FROM PAST MTGS

BACKGROUND

The Applicant and Agent have provided a good summary of the project related to circumstances before and after the Board's denial for preliminary subdivision approval in 9/26/2013. The Superior Court, on 3/11/2015 granted the applicant a Rule 80B appeal and vacated the Board's 2013 decision and remanded back to the Board for further proceedings consistent with its decision. The Board has held a second public hearing where they heard from the Town Attorney on the background of the 80B appeal. The Applicant has responded to comments made at the 6/11 meeting in the 7/24/15 submission booklet. The applicant presented a final plan application and associated documents at the 12/10 meeting that address the preliminary plan conditions of approval and final plan requirements.

After consultation with staff and peer-review engineer, the applicant has submitted supplemental information for the Board's consideration. The Board has until the March 10th meeting to act on the final plan where per 16.10.8.1.2 requires the Board to act on the final plan within a 90 days of the accepted application. Staff has provided draft Findings of Fact for consideration.

STAFF REVIEW

{The following are from the 12/10/15 meeting}

Staff has met with pertinent Department Heads, with comments mostly concerning the intensity of the site preparation and recommend obtaining more details on the plan for the earth and rock extraction. As documented in the applicant's submittal book (Section 5, enclosure 1) the fire and police chiefs met with the applicant to review the revised one-way traffic design for the proposed development. Staff spoke with the Public Works Commissioner and he requests that construction traffic is limited to the northerly end of Idlewood Lane and vehicles accessing the site would do so only via the intersection at Route One. This would require construction vehicles leaving the site to make a left and not a right onto Idlewood Lane. In addition, a plan note needs to be added that identifies this portion of Idlewood to be reconstructed to the satisfaction of the Public Works Commissioner.

*Staff was unable to complete a review of the robust and comprehensive final plan submittal, nor did CMA, the town peer-review engineer complete their review. **UPDATE:** CMA prepared and submitted comments to the applicant 1/7/2016 (attached) subsequent to a meeting with the applicant on 1/5/16. The applicant's most recent submittal addresses these comments and CMA has prepared a follow-up review, also attached for the Boards consideration.*

However, the following are comments to date, starting with the preliminary plan conditions of approval.

1) The Preliminary Plan conditions of approval are addressed in the applicant's submittal book, Section 5.

1. Modification to the road layout to accommodate sidewalk

The revised one-way traffic road layout does provide for the additional width the Board was requesting to accommodate a safe and designated area for pedestrians, and would appear to conform to Title 16.8.12.3.M that requires walkways that connect the units to all service and recreational facilities. Though it is clear from the Detail Sheet (R6) that there is a 3-foot wide area designated on the typical one-way road section, the extent of the walk way is not clear since it does not seem to be located on any plans. The typical two-way road section does not include the same accommodation for pedestrians as does the one-way section. The applicant should address this. In addition, the proposed on-street parking should reflect the one-way nature of the road design and be constructed at an angle rather than perpendicular.

UPDATE: Typical street sections included on Sheet R6 have been revised to all include accommodation of a 3-foot wide area for a pedestrian walkway. Grading and Drainage Plans Sheets C-3 and C-4 also include plan notes referencing the typical sections on Sheet R-6. It appears that there will be a pedestrian way throughout the primary development site connecting to the community center and Idlewood Lane.

2. Development of a comprehensive plan for earth rock removal that complies with applicable provisions of the State of Maine

The applicant has provided a draft operations plan that addresses the questions raised as to how the construction operation would be accountable to the various performance standards required for a safe and healthy construction site. The draft plan is very helpful in understanding the complexity and scale of the proposed construction.

Staff spoke to MDEP, Bureau of Land and Water Quality, with regard to blasting. It appears that the state a number of years back revised the law to include the specific blasting performance standards for commercial rock quarries (490-Z in Title 38) since they found there were excessive blasting used at large-scale development projects. So the proposed earth removal for the project as it relates to blasting will receive the same scrutiny has a commercial application, however, there may be nuances that should be reviewed that should be modified to relate the uniqueness of the mobile home park site. Blasting monitoring for example, is required to include stations established at the closest structures outside the control of the developer. It would seem prudent to ensure that the structures on the existing mobile home park be included in the monitoring.

Staff recommends that the final operations plan, especially the blasting plan, receive review and approval in some manner by the Town. Perhaps at a minimum the Town's peer-review engineer with input by pertinent department heads.

UPDATE: The applicant has prepared an Earth Rock Removal Operations Plan (ERRP) and appears to address the Board's condition. Staff has reviewed the ERRP and other than some minor suggestions related to consistency and clarity (and will provide directly to the agent) Staff has the following comments:

- a) The example cited above in 12/10 notes does not appear to have been addressed. Section 1.1.4 Special Considerations may be a place to accommodate this;
- b) It is not apparent where a pre-construction meeting is required to include pertinent parties representing the owner and applicant with the pertinent parties representing the regulatory agents, including at a minimum the Town's Peer-Review Engineer, Code Enforcement Officer, Stormwater Coordinator and Commissioner of Public Works;
- c) It is not apparent that the ERRP and specific subsets of this operations plan, is allowed to be approved by the town. It is understood that the plan will likely not be finalized until contract bidding and still subject to change with a General Contractor on board, however, at a minimum the town, in some capacity, should be allowed to review and approve any changes that relate to the Planning Board's expectation of the construction's execution.
- d) In section 3.10.9.2 the suspension of hauling from June 30 through Labor Day is qualified with the clause "as may be necessary". This should be removed unless it is clear who determines what is necessary and the Board concurs; and
- e) In the same manner and in the same section as above, if hauling is not to be allowed on Saturdays and Sundays, with no exceptions, it should be stated more clearly. If there is an intention to provide exceptions, it should be stated under what circumstances, if the Board concurs. If the intent is to give respite to residents in the area, perhaps major holidays should be included?
- f) Top of page 9 of 19 in Section 1.3.8, installation of erosion and sedimentation control devices is discussed. Along with the Peer-Review Engineer, the town's Stormwater Coordinator must inspect the devices before construction can begin. The requirement is related to the town's MS-4 permit and the site is within the MS-4 area of the town. In addition, references to "Maine Erosion & Sedimentation Control BMP's March 2003" need to be replaced with "*Environmental Quality Handbook Erosion and Sedimentation Control* published by Maine Soil and Water Conservation Commission".

3. Address limits to the daily trucking rate for rock removal

The applicant has provided insight as to what the likely quantity of truckloads during construction and their position with regard to constraining this aspect of the proposed construction. In summary, Title 16 does not

specifically address construction traffic and if MDOT rules and standards are not triggered by their review any constraints would be not supported by local and state regulation and would be arbitrary.

In the absence of comments from CMA, staff has the following comments.

1) It appears that the number of estimated truckloads per day have increased from the prior submittal information from 68 to 120. This would yield 240 roundtrips or 24 per hour (based on a 10 hour 7:00 am to 5:00 pm day). With this in mind it is not clear why on line 83 does the applicant state that it would be “not feasible” to create the 25 truck round trips in an hour, needed to require a permit. 24 truckloads is very close to 25.

2) As stated under condition 2 above with review and approval of the final operations plan, staff recommends that the final details on hauling the extracted and excavated material should be reviewed and approved in some manner by the Town.

3) Staff interprets Title 16.10.8.2.1 providing authority to the Planning Board to condition a final plan with restrictions that ultimately furthers the overall purpose of the town’s land use code; “...to promote the health, safety and general welfare of its residents.”

UPDATE: The ERRP addresses the above comments, however, the Board should determine if someone other than or in addition to the Police Chief should approve the hauling routes. See CMA comments from 1/7/16 and 2/3/2016 email

4. *Development of a mitigation plan for Idlewood Lane damage, including financial assurance and concurrence with Kittery Commissioner of Public Works*

It appears the Applicant is in agreement with the notion for repairing Idlewood Lane where it is evident that the proposed development’s construction is the cause. As mentioned earlier, staff recommends along with a condition of approval that identifies the constraint on traveling south on Idlewood with construction vehicles and the street repair by the developer when construction is completed, the plan is revised to show the likely extent of the street that will be impacted and expected to be repaired or reconstructed if need be to the satisfaction of the Public Works Commissioner.

UPDATE: The applicant is in agreement with repair or reconstruction of Idlewood Lane if necessary and to the satisfaction of the Public Works Commissioner and has revised the Subdivision Plan with a condition of approval. Staff suggests the following condition instead to provide a clearer expectation: ‘The Developer is responsible for the repair or reconstruction of Idlewood Lane if damaged as part of the site’s construction as determined by and to the satisfaction of the Commissioner of the Public Works. Prior to construction a surety acceptable to the Town of Kittery must be established in the amount to cover all costs for the reconstruction of 400 linear feet of Idlewood Lane.’

5. *Amendment to traffic report to address traffic questions in the CMA’s September 1st letter*
CMA plans to address this in time for the next meeting.

UPDATE: See CMA comments from 1/7/16 and 2/3/2016 email

6. *Provide an estimate of the level of diesel emissions at the site with respect to particulates, nitrous oxides, carbon monoxide, volatile organic compounds and ozone*

As with construction traffic the applicant finds that Title 16 does not specifically address air quality with much specificity. That being the case, local regulations are met since there are state and federal regulations

applicable to the proposed development and required by the project's MDEP Site Law Development permit. Staff tends to concur with this and the applicant has demonstrated they are actively considering the manner in which they will comply with the air quality related regulations in their plans to engage AMEC Foster Wheeler (enclosure 9 in Section 5 of the submittal book). It is presumed the study will be available to the Board at the next meeting. Staff suggests that perhaps the consultant can identify the manner in which air quality may be monitored over the course of the construction period so that it is evident that compliance with the regulations is feasible over the duration.

UPDATE: The applicant has submitted the AMEC Foster Wheeler study for the Board's consideration and have addressed issues cited in the above comment in their ERRP. The evaluation concludes that emissions from planned construction activities will meet National Ambient Air Quality Standards recognized by the USEPA. See CMA comments from 1/7/16 and 2/3/2016 email

7. Supply input from the Open Space Committee

Staff has provided the latest copy of the Report to Council (RTC 11/27) regarding the conservation easement the applicant is seeking with the town. Along with the earlier version (enclosure 10 in Section 5 of the submittal book) the applicant included a memo from the Kittery Open Space Advisory Committee (KOSAC) that supports the proposal with some "caveats". In addition to this staff has included an email that Steve Hall, a KOSAC member, provided in hope to clarify that the entire committee was not in attendance and also not in agreement with the final outcome and wanted the Planning Board to know.

Some initial observations staff has at this point in time:

1) It appears that the required open space (10% of the total area of the lots) is not included in the proposed conservation easement (though there is a slight difference in totals between Sheet S1 and the exhibit OSP that is attached to the RTC). This may be important with regard to how the Board might consider the proposed conservation easement to the town.

2) It is not clear how having the Town hold the easement would enhance or be required for the preservation of the proposed conservation area. It seems that a deed restriction and a resource management/conservation plan for the park management to execute along with a public access easement for the trail would achieve the same goal. In this way the property owner has total control of the property. It is not clear to what extent the proposed conservation area is required by MDEP's stormwater permitting.

3) If the town is to except the open space conservation easement this would be the first of its kind for the Town. A thorough analysis should be made and the forthcoming management plan vetted so that expectations are clear for all parties involved.

UPDATE: For the 12/10 meeting the applicant submitted information from the Kittery Open Space Advisory Committee (KOSAC) addressing this condition by the Board. The Applicant has confirmed that none of the required open space (10% of the total area of the mobile home lots) is located within the area designated as conservation easement. As such it appears that the Board's review and approval of this area is not applicable unless the Board determined that the area or some portion of it needed to be preserved as open space or restricted in some manner in order to make a positive finding on the requirements included under 16.10.8.3.4 Findings of Fact. This does not appear to be the case. In the absence of this, staff suggests the Board can

provide the applicant their opinion on the need or the logistics of the proposed conservation easement. Staff has the following comments, however, as this area relates to the Subdivision Plan S-1:

- a) If the conservation easement is not executed in what manner is the area managed? Without clarifying this the plan would need to be approved by the Board if revised; and
- b) It should be noted that the proposed stone dust trail needs to be federal, state and local regulatory review and permits prior to construction;

8. Respond to the concerns from the Conservation Commission in writing

The applicant has responded to the questions raised by the KCC and CMA, peer-review engineer plans to provide comment in time for the next meeting.

UPDATE: The applicant's agent (sub consultant S.W. Cole) has made an effort to discuss the issues raised directly with Don Moore with the Conservation Commission, however, no additional information has been provided. Staff has requested for S.W. Cole to provide drawings and/or other exhibits to demonstrate their conclusion. They plan to present their findings at the next meeting.

9. Address traffic concerns about removal of material

As stated previously, staff recommends that hauling routes as part of the operations plan should be reviewed and approved by the Town in some manner. In addition, staff is discussing with the MDOT what opportunities there may be for the truck haulers to use the turnpike rest area as a way to limit the amount of construction traffic in the southerly portion of Route One.

UPDATE: Staff spoke to Kyle Hall, Region 1 Traffic Engineer for MDOT, with regard to the use of the Rest Area for access to interstate 95. He stated that the access is public, however, such frequent and large hauling will require coordination with their office.

- 2) **Findings of Fact 16.10.8.3.4.** *Staff stated at preliminary plan review "In the same manner that the applicant has made an effort to methodically address application requirements and the mobile home standards, it would be very helpful to have the same done with the standards the Board will ultimately have to make a positive finding on. These standards are based from the State's subdivision law, 30-A MRSA § 4404, which is applicable in this instance."*

The applicant has submitted a very thorough response and the applicant's position on how the proposed development meets the standards that the Board is required to make positive findings on. Though the information is very helpful it was not staff's intention for the applicant to draft the actual Findings of Fact. The Board can expect a draft Findings of Fact that may include some information the applicant has provided but likely not all of it. The Board should refer to it as applicant information and not as a draft of the eventual Findings of Fact the Board will act on.

UPDATE: Staff has prepared draft findings of fact for the Board's consideration. The conditions of approval do not reflect a final list, and will need further edits.

- 3) **Draft Rules and regulations.** *Staff recommends that along with the open space restrictions that is noted as forthcoming, a section on the requirements of the state's MDEP Site Location and Development Permit should be added to provide an understanding of the restrictions and the context for the copy of the actual permit presumably each tenant must receive.*

UPDATE: The applicant has suggested updating the draft Rules with specific language they provided in their response 'Planner-Peer Reviewer Comments', page 4, lines 134-151.

4) *There are some various comments for minor plan revisions that staff plans to discuss with the applicant's agent prior to the next meeting. The completed application form (Section 1 in the Submittal Book) includes the waiver requests that the Board should take the opportunity to consider. It does not appear the second and third requests (16.10.5.2.C.6 and 16.8.12.3.S) require a waiver since the both have the option for the peer-review engineer to review and find compliant rather than the York County Soil and Water Conservation District.*

UPDATE: The applicant concurs

Waiver request for 16.10.5.2.A.2 is for plan scale and seems reasonable. The last request, 16.8.12.3.I.4 regarding the minimum 50-foot radius reduced to 30 feet, appears to not create any apparent safety issues, however, staff would like to confirm with the Fire Chief.

UPDATE: Staff has confirmed with the Fire Chief that the modification to the cul-de-sac is not an issue.

New comments:

5) In the introduction of the Earth/Rock Removal Operations Plan (ERRP) it is stated the project is expected to take five years to complete. Per 16.10.9.1.4.A a subdivision plan approval will expire if the project is not complete within 3 years of planning board approval. This provision was amended in 1/28/2015, changing the 5 year period to complete a subdivision to 3 years. Since the original submission prior to the superior court appeal was reviewed under the earlier code, the 5 year period would apply. A plan note on the subdivision plan should state this, so there is no confusion later on.

6) The Subdivision Plan (sht-S-1) should include a plan note that addresses the "proposed conservation" easement. As mentioned under condition #7, if the "conservation easement is not executed what are the implications? Does the plan come back to the Planning Board? At this point it is not clear. Perhaps the "proposed" easement is better stated as "future" easement and/or a note that explains the intent and that it is not part of the regulatory requirements. The note might also state that it will be maintained as "open space" or as a "no-disturb area" by the mobile home park management until such time a conservation easement is executed. So the final plan's approval is in effect is not tied to the execution of the conservation easement or not. The applicant's agent has informed staff that the MDEP's stormwater permitting is not tied to the conservation easement and the land it encompasses as being maintained in a specific manner.

7) Street name. A Street naming application should be completed and submitted for Town review and approval. Staff is checking with the Assessor and 911 GIS addressing requirements, however, the Assessor and Fire Chief suggest that having a unique street name and unit number would be preferable from the Town's perspective.

8) Though it has been evident, staff has not considered the implications until now of having the proposed development on a separate parcel under, technically, different ownership than the adjacent mobile home park, where the access to the proposed development is partially on this adjacent lot. Perhaps a note that addresses this, and the necessary access and utility easement to burden the Yankee Mobile Home Park LP property. The Subdivision Plan (S-1) should also reflect that the proposed roadway is located on the on the other property, perhaps denoted as a dashed line.

9) On the Subdivision Plan (S-1) notes refereeing to "no disturb" setback cites Sheet S-1, note 4, however, it is evident it is refereeing to another note on another sheet. The plan needs to be revised, perhaps "S-1" was meant to be "C-2". Same reference is also found on Sheet C-2, however, plan note #4 seems more applicable. It reads: "The non-disturbance setback shown hereon is either 75' emergent wetland setback, the 100' stream setback or the 25' wetland setback." It is not clear which one applies on the plan. Staff recommends that there is a single "no disturb" setback line depicted on the plan(s). This line may have to cover other regulatory lines, however, it would be clear as to where the "no-disturb" land is, especially important during construction.

10) Wetland Alteration Application. There does not seem there was one completed and submitted. 900 square feet of wetland is proposed to be filled in order for the access drive to be constructed. Mitigation compensation for the alteration is 900* \$4/sf for a total of \$3,600.

STAFF RECOMMENDATION

The preliminary plan conditions of approval have been addressed with some minor additional comments from Staff and CMA. Though staff and the peer-review engineer do consider the proposed wetland impact as reasonable in the context of the overall proposed development, an application and review and approval of the application appears to be required. With this in mind, the Board should likely continue the application to the March 10 meeting for final action after providing comments to the applicant and staff on the information submitted to date.

If circumstances arise where the Board receives the wetland alteration application at the meeting and concur with its contents and after consideration of staff and CMA comments and any other additional input from the applicant and agents the Board can approve with conditions the final subdivision plan.

BOARD ACTION

Move to continue the final subdivision plan for a 78-lot expansion of the Yankee Commons Mobile Home Park located at US Route 1, for owner/applicant Real Property Trust Agreement, Tax Map 66, Lot 24 to March 10, 2016

**KITTERY PLANNING BOARD
FINDINGS OF FACT -
For**

UNAPPROVED

YANKEE COMMON MOBILE HOME PARK SUBDIVISION

WHEREAS: **Applicant and Owner Stephen A. Hynes, Trustee, owner** –to expand the adjacent Yankee Commons Mobile Home Park to create 77 mobile home units and 1 community center/office building on 50 acres. Property is located off Idlewood Lane/U.S. Route 1, Map 66 Lot 24, Mixed Use (MU) Zone.

Hereinafter the “Development”.

Pursuant to the Plan Review meetings conducted by the Planning Board as duly noted;

Note: This approval by the Planning Board constitutes an agreement between the Town and the Developer, incorporating as elements the Development Plan and supporting documentation, the Planning Board Findings of Fact, and any Conditions for or of Approval required by the Planning Board.

WHEREAS: **Applicant and Owner Stephen A. Hynes, Trustee,**–to expand the adjacent Yankee Commons Mobile Home Park to create 77 sites on 50 acres. Property is located off Idlewood Lane/U.S. Route 1, Map 66 Lot 24, Mixed Use (MU) Zone.

Considered to be a part of the approval by the Planning Board in this finding consist of the following:

Hereinafter the “Plan”:

Application and supporting documents:

Application Booklet (7/2012) REV 9/4/12
Plans and supporting information submitted for Special Permit (8/5 & 9/6/2013)
Memos from Code Enforcement Officer regarding Special Permit (9/5 & 9/12/2013)
Superior Court Civil Action Order, Docket No. AP-13-040
History & Overview Precis (4/23/2015)
Response to Planning Office & Public Hearing Comments (7/25/2015)
Final Subdivision Review Application (11/19/2015)

Plans Submitted

(Preliminary Plan Set of 22 Sheets, 8/1/2012, REV 4/18/2013):
(Preliminary Consolidated Package submitted 4/20/2015)
Final Plan set of 24 sheets; 11/19/2015; REV 1/19/16

Cover Sheet	Roadway A Plan and Profile R1-R2
Boundary Plan	Roadway B & C Plan and Profile R3
Subdivision Plan S1	Roadway D Plan and Profile R4
Subdivision Plan Site Layout S2	Roadway E & F Plan and Profile R5
Subdivision Plan Site Detail Layout S3	Construction Details R6-R7
Boundary Adjustment and Existing Conditions Plan C1	Maintenance Notes R8
Overall Site Plan C2	Landscape Plan L1 –L2
Grading and Drainage Plan C3-C4	Overall Site Lighting Plan ES
Utility and Underdrain Plan C5-C6	Overall Lighting Study EP
Grassed Filter Control Plan C7	
Grassed Filter Control Section C8	

Meetings Held

REQ'D	ACTION	COMMENTS	STATUS
YES	Sketch Plan	2/23/12	Accepted
YES	Site Visit	9/4/12; 6/2/2015 (2 nd visit)	Held
YES	Completeness/Acceptance	8/23/12	Granted
YES	Public Hearing	9/13/12; 6/11/2015 (2 nd hearing scheduled)	Held
YES	Preliminary Plan Review and Approval	9/13/12 mtg continued for addt'l info re: mineral extraction (90 days max) 12/13/12 & 3/14/13 granted 90-day continuance 5/9/13 tabled requested by Applicant 6/13/13 Reconsideration of 9/13/12 decision failed 7/11/13 Board continued for addt'l info re: preparation of findings with Town Attorney 8/8/13 Board continued for CEO's recommendation on a special permit for Mineral/Earth Extraction 9/12/13 Board continued to 9/26/13 meeting due to time constraints and denied preliminary plan approval. 3/11/2015 Superior Court grants Rule 80B appeal to applicant 6/11/2015 Board continued not to exceed 90 days 9/10/2015 Board conditionally approved preliminary plan	Granted
YES	Final Plan Review/Approval	Final Plan Appl. accepted 12/10/15	TBD
YES	Wetland Alteration		TBD

FINDINGS OF FACT

Action by the board shall be based upon findings of fact which certify or waive compliance with all the required standards of this title, and which certify that the development satisfies the following requirements:

A. Development Conforms to Local Ordinances.

The proposed development conforms to a duly adopted comprehensive plan as per adopted provisions in the Town Code, zoning ordinance, subdivision regulation or ordinance, development plan or land use plan, if any. In making this determination, the municipal reviewing authority may interpret these ordinances and plans.

Finding: The proposed mobile home park development is an expansion to the existing Yankee Common Mobile Home Park. The use is not a permitted or special exception in the Mixed-Use zone where the development is predominantly located, however, the superior court ruled that the Town's ordinance prohibiting mobile home parks from the Mixed-Use Zone is invalid under 30-A M.R.S. § 4358(3)(M).

The proposed development does not meet the town's 6,000 s.f. minimum lot size per 16.8.12.3.C.1. In the same manner as the use is permitted in the Mixed-Use Zone through the state's mobile home statute, Title 16.8.12.3.C.1 is invalidated by 30-A M.R.S. § 4358(3)(A)(1)(b).

The project includes filling of 900 sf of wetlands. **A wetland alteration application needs to be filed in accordance with 16.9.3.**

The remaining applicable provisions of Title 16 appear to have been met.

Conclusion: The standard appears to have been met, subject to the wetlands alteration application.

Vote of 0 in favor 0 against 0 abstaining

B. Freshwater Wetlands Identified.

All freshwater wetlands within the project area have been identified on any maps submitted as part of the application, regardless of the size of these wetlands.

Finding: All wetlands have been delineated and mapped in accordance with applicable standards. A stream has been identified on the site and depicted on the plans

Conclusion: The standard appears to have been met.

Vote of 0 in favor 0 against 0 abstaining

C. River, Stream or Brook Identified.

Any river, stream or brook within or abutting the proposed project area has been identified on any maps submitted as part of the application. For purposes of this section, "river, stream or brook" has the same meaning as in 38 M.R.S. §480-B, Subsection 9.

Finding: A stream has been identified on the site and depicted on the plans

Conclusion: The standard appears to have been met.

Vote of 0 in favor 0 against 0 abstaining

D. Water Supply Sufficient.

The proposed development has sufficient water available for the reasonably foreseeable needs of the development.

<p>Finding: The site is serviced by public water. The Kittery Water District has indicated ability to serve project. Conclusion: The standard appears to have been met.</p>
<p style="text-align: center;">Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining</p>
<p>E. Municipal Water Supply Available.</p>
<p><i>The proposed development will not cause an unreasonable burden on an existing water supply, if one is to be used.</i></p>
<p>Finding: The site is serviced by public water and applicant has received confirmation from the Kittery Water District as to sufficient supply for the proposed development. Conclusion: The standard appears to have been met.</p>
<p style="text-align: center;">Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining</p>
<p>F. Sewage Disposal Adequate.</p>
<p><i>The proposed development will provide for adequate sewage waste disposal and will not cause an unreasonable burden on municipal services if they are utilized.</i></p>
<p>Finding: The site is serviced by town sewer and has received confirmation from the Town that the system is sufficient to support the proposed development Conclusion: The standard appears to have been met.</p>
<p style="text-align: center;">Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining</p>
<p>G. Municipal Solid Waste Disposal Available.</p>
<p><i>The proposed development will not cause an unreasonable burden on the municipality's ability to dispose of solid waste, if municipal services are to be used.</i></p>
<p>Finding: The applicant has expressed and provided information on plans to manage solid waste in the mobile home park in a manner that will support the proposed development Conclusion: The standard appears to have been met.</p>
<p style="text-align: center;">Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining</p>
<p>H. Water Body Quality and Shoreline Protected.</p>
<p><i>Whenever situated entirely or partially within two hundred fifty (250) feet of any wetland, the proposed development will not adversely affect the quality of that body of water or unreasonably affect the shoreline of that body of water.</i></p>
<p>Finding: The site or the development is located in the Shoreland or Resource Protection Overlay Zones. The stormwater management plan includes features to treat stormwater in accordance with MEDEP requirements, and best management practices. Conclusion: The standard appears to have been met.</p>
<p style="text-align: center;">Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining</p>
<p>I. Groundwater Protected.</p>
<p><i>The proposed development will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater.</i></p>
<p>Finding: The site is serviced by town sewer and it does not appear the proposed development will adversely affect the groundwater. The applicant has provided analyses of the pre- and post-development stormwater management, and described that post-construction conditions will mimic pre-construction conditions relative to interaction of stormwater and groundwater. The general pattern and spatial distribution of stormwater discharge is similar pre and post. Further, most of the stormwater discharges are designed to flow through infiltration or bioretention BMPs, which will encourage infiltration of runoff to</p>

<p>groundwater, further causing conditions post construction to mimic pre-construction conditions. The applicant's environmental consultant made an additional presentation of these and related findings to the Planning Board (pending).</p> <p>Conclusion: The standard appears to have been met.</p>
<p>Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining</p>
<p>J. Flood Areas Identified and Development Conditioned.</p> <p><i>All flood-prone areas within the project area have been identified on maps submitted as part of the application based on the Federal Emergency Management Agency's Flood Boundary and Floodway Maps and Flood Insurance Rate Maps, and information presented by the applicant. If the proposed development, or any part of it, is in such an area, the applicant must determine the one hundred (100) year flood elevation and flood hazard boundaries within the project area. The proposed plan must include a condition of plan approval requiring that principal structures in the development will be constructed with their lowest floor, including the basement, at least one foot above the one hundred (100) year flood elevation.</i></p>
<p>Finding: A portion of the site is located in the flood zone, however, no buildings or structures will be constructed within these zones.</p> <p>Conclusion: The standard appears to have been met.</p>
<p>Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining</p>
<p>K. Stormwater Managed.</p> <p><i>Stormwater Managed. The proposed development will provide for adequate stormwater management</i></p>
<p>Finding: The proposed development has received state permits and has been reviewed by the town's peer-review engineer. The designs meet applicable best management practices for management of flow and stormwater treatment.</p> <p>Conclusion: The standard appears to have been met.</p>
<p>Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining</p>
<p>L. Erosion Controlled.</p> <p><i>The proposed development will not cause unreasonable soil erosion or a reduction in the land's capacity to hold water so that a dangerous or unhealthy condition results.</i></p>
<p>Finding: The proposed development has received state permits and has been reviewed by the town's peer-review engineer. The applicant has prepared a Earth/Rock Removal Operations Plan reviewed by town staff and Peer-review engineer. Designs meet applicable management requirements for control of erosion.</p> <p>Conclusion: The standard appears to have been met.</p>
<p>Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining</p>
<p>M. Traffic Managed.</p> <p><i>The proposed development will:</i></p> <ol style="list-style-type: none"> <i>1. Not cause unreasonable highway or public road congestion or unsafe conditions with respect to the use of the highways or public roads existing or proposed; and</i> <i>2. Provide adequate traffic circulation, both on-site and off-site.</i>
<p>Finding: The proposed development is not subject to a state traffic movement permit. Vehicular and pedestrian circulation has been reviewed by the town's staff and peer-review engineer, a one-way circulation that accommodates pedestrian access has been provided. The applicant's Earth/Rock Removal Operations Plan includes reasonable strategies for limiting the impacts of construction-period impacts of trucking of excavated materials from the site.</p> <p>Conclusion: The standard appears to have been met.</p>
<p>Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining</p>

N. Water and Air Pollution Minimized.

The proposed development will not result in undue water or air pollution. In making this determination, the following must be considered:

1. *Elevation of the land above sea level and its relation to the floodplains;*
2. *Nature of soils and sub-soils and their ability to adequately support waste disposal;*
3. *Slope of the land and its effect on effluents;*
4. *Availability of streams for disposal of effluents;*
5. *Applicable state and local health and water resource rules and regulations; and*
6. *Safe transportation, disposal and storage of hazardous materials.*

Finding:

1. No filling or development is proposed within the 100 year floodplain.
2. Development will utilize town sewer.
3. Development will utilize town sewer.
4. Development will utilize town sewer.
5. The applicant has received the MDEP Stormwater License and ACOE Permit
6. There will be no handling of hazardous materials.

The applicant has completed an independent analysis of specific air quality impacts during construction activities, which concludes that emissions from planned construction activities will meet National Ambient Air Quality Standards recognized by the USEPA.

Conclusion: This standard appears to be met.

Vote of 0 in favor 0 against 0 abstaining

O. Aesthetic, Cultural and Natural Values Protected.

The proposed development will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the department of inland fisheries and wildlife or the municipality, or rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline.

Finding: The proposed development does not have any adverse effects to any known aesthetic, cultural and natural values that require protection. A 25-foot no disturb setback is required around the Wilson family cemetery located on the site and parking is also provided to accommodate visitors.

Conclusion: The standard appears to have been met.

Vote of 0 in favor 0 against 0 abstaining

P. Developer Financially and Technically Capable.

Developer is financially and technically capable to meet the standards of this section.

Finding: 16.10.7.2.P. Performance Guaranty and Town Acceptance to secure completion of all improvements required by the Planning Board and written evidence the Town manager is satisfied with the sufficiency of such guaranty. This is required prior to final approval, and will include restoration of off-site roadway impacts, as necessary.

Conclusion: This standard appears to be met.

Vote of 0 in favor 0 against 0 abstaining

WETLAND ALTERATION FINDINGS OF FACT: *The project includes 900 sf of wetlands filling associated with roadway construction. An application for wetlands alteration needs to be prepared and submitted per 16.9.3. Note that the MEDEP has issues a Permit by Rule for the filling.*

16.9.3.7 Wetlands Alteration Approval Criteria	
<i>A. In making the final determination as to whether a wetland application should be approved, the Planning Board will consider existing wetland destruction and the cumulative effect of reasonably anticipated future uses similar to the one proposed. Preference will be given to activities that meet wetland setbacks, have a reasonable stormwater management plan (subject to Planning Board review and approval), and that dedicate easements for the purposes of maintaining the wetland and the associated drainage system. Approval to alter a wetland will not be granted for dredging or ditching solely for the purpose of draining wetlands and creating dry buildable land areas. An application for a wetlands alteration will not be approved for the purpose of creating a sedimentation or retention basin in the wetland. Increased peak runoff rates resulting from an increase in impermeable surfaces from development activities are not allowed.</i>	
TBD (pending wetlands alteration application)	
Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining	
<i>B. It is the responsibility and burden of the applicant to show that the proposed use meets the purposes of this Code and the specific standards listed below to gain Planning Board approval to alter a wetland. The Planning Board will not approve a wetlands alteration unless the applicant provides clear and convincing evidence of compliance with the Code.</i>	
TBD (pending wetlands alteration application)	
Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining	
<i>C. In evaluating the proposed activity, the Planning Board may need to acquire expert advisory opinions. The applicant must be notified in writing, by the Town Planner at the Planning Board's request, that the applicant will bear the expenses incurred for the expert persons or agencies. The Planning Board will consider the advisory opinion, including any recommendations and conditions, provided by the Conservation Commission.</i>	
TBD (pending wetlands alteration application)	
Vote of <u> 0 </u> in favor <u> 0 </u> against <u> 0 </u> abstaining	
<i>D. When the Planning Board finds the demonstrated public benefits of the project as proposed, or modified, clearly outweigh the detrimental environmental impacts, the Planning Board may approve such development, but not prior to granting approval of a reasonable and practicable mitigation plan, (see Section 16.9.3.9) and not prior to the completion of all performance guaranties for the project, (see Section 16.10.8.2.2).</i>	
Applicant: The project includes a reasonable and practicable mitigation plan which includes the following:	
<input type="checkbox"/> 45,559 SF protected wooded buffer easement on Lot 10 adjacent to the roadway. This best management practice (BMP) provides superior stormwater treatment, requires minimal maintenance, and preserves existing woodland. Constructin of other BMPs, such as constructing underdrained soil filters along the roadway would reduce the land restriction to the owner (area of easements), but would require additional clearing of mature woodland.	
<input type="checkbox"/> A 3' by 3' roadway culvert with a partially buried invert allows passage of aquatic fauna to and from the on-site wetland to the wetland on the abutting parcel to the north.	
<input type="checkbox"/> To mitigate impacted habitat, the applicant proposes tree planting along the northerly and easterly property line as shown on the drawings. This also services as a naturalized buffer for the residents and abutters. Bird houses and shrubs selected for wildlife benefits are proposed at the open space community area located south the Lot 6. Additional trees will be planted on Lots 7, 8 and 9 as well as the portion of open space west of Lot 9 (which will be allowed to revert to woodland).	
<input type="checkbox"/> Open space provided exceeds the cluster development requirement by 42,253 sf or 0.97 acres (13.27 acres	

vs. 12.3 acres).

- Open space uplands provided exceeds the cluster development requirement by 34,848 sf or 0.80 acres (4.79 acres vs. 3.99 acres).
- The applicant will provide the applicable wetland mitigation fees to the Town. The applicant anticipates establishing an escrow account for the permanence guarantee and is scheduling a meeting with the Town Manager for review and approval of form.

TBD (pending wetlands alteration application)

Vote of 0 in favor 0 against 0 abstaining

E. The applicant must submit applicable documentation that demonstrates there is no practicable alternative to the proposed alteration of the wetland. In determining if no practicable alternative exists, the Board will consider the following:

The proposed use:

- 1. Uses, manages or expands one or more other areas of the site that will avoid or reduce the wetland impact;*
- 2. Reduces the size, scope, configuration or density of the project as proposed, thereby avoiding or reducing the wetland impact;*
- 3. Provides alternative project designs, such as cluster development, roof gardens, bridges, etc., that avoid or lessen the wetland impact; and*
- 4. Demonstrates that the proposed development meets or exceeds best management practices for stormwater management in the wetland areas.*

TBD (pending wetlands alteration application)

Vote of 0 in favor 0 against 0 abstaining

F. In determining if the proposed development plan affects no more wetland than is necessary the Planning Board will consider if the alternatives discussed above in subsection A of this section accomplish the following project objectives:

The proposed use will not:

- 1. Unreasonably impair or diminish the wetland's existing capacity to absorb, store, and slowly release stormwater and surface water runoff;*
- 2. Unreasonably increase the flow of surface waters through the wetland;*
- 3. Result in a measurable increase in the discharge of surface waters from the wetland;*
- 4. Unreasonably impair or diminish the wetland's capacity for retention and absorption of silt, organic matter, and nutrients;*
- 5. Result in an unreasonable loss of important feeding, nesting, breeding or wintering habitat for wildlife or aquatic life; all crossings must be designed to provide a moist soil bed in culvert inverts and to not significantly impede the natural migration of wildlife across the filled area;*
- 6. Result in a measurable increase of the existing seasonal temperature of surface waters in the wetland or surface waters discharged from the wetlands.*
- 7. Result in a measurable alteration or destruction of a vernal pool.*

TBD (pending wetlands alteration application)

Vote of 0 in favor 0 against 0 abstaining

Title 16.8.3.1 - Street Naming Application:

TBD

Vote of 0 in favor 0 against 0 abstaining

NOW THEREFORE the Kittery Planning Board adopts each of the foregoing Findings of Fact and based on these Findings determines the proposed Development will have no significant detrimental impact, and the Planning Board hereby grants Final Approval for the Development at the above referenced property, including any waivers/modifications granted or conditions as noted.

Conditions of Approval (to be depicted on final plan):

1. No changes, erasures, modifications or revisions may be made to any Planning Board approved final plan. (Title 16.10.9.1.2)
2. Applicant/contractor will follow Maine DEP *Best Management Practices* for all work associated with site construction to ensure adequate erosion control and slope stabilization.
3. Applicant follow the provisions and requirements of the final Earth/Rock Removal Operations Plan approved for the project
4. Prior to the commencement of grading and/or construction within a building envelope, as shown on the Plan, the owner and/or developer must stake all corners of the envelope. These markers must remain in place until the Code Enforcement Officer determines construction is completed and there is no danger of damage to areas that are, per Planning Board approval, to remain undisturbed.
5. All Notices/Instructions to Applicant contained herein.

Conditions of Approval (not to be depicted on final plan):

6. Incorporate any plan revisions on the final plan as recommended by Staff, Planning Board or Peer Review Engineer, and submit for Staff review prior to presentation on final Mylar
7. Prior to start of any site development/construction, applicant shall pay wetland mitigation fees of \$ _____
8. Drafts of all easements must be provided for staff review prior to signing of final plan.

Notices/Instructions to Applicant:

1. Prior to the release of the signed plans, the applicant must pay all outstanding fees associated with review, including, but not limited to, Town Attorney fees, peer review, newspaper advertisements and abutter notification.
2. State law requires all subdivision and shoreland development plans, and any plans receiving waivers or variances, be recorded at the York County Registry of Deeds within 90 days of the final approval.
3. One (1) mylar copy and two (2) paper copies of the final plan (recorded plan if applicable) and any and all related state/federal permits or legal documents that may be required, must be submitted to the Town Planning Department. Date of Planning Board approval shall be included on the final plan in the Signature Block.
4. The owner and/or developer, in an amount and form acceptable to the town manager, must file with the municipal treasurer an instrument to cover the cost of all infrastructure and right-of-way improvements and site erosion and stormwater stabilization, including infrastructure construction inspection fees.

5. This approval by the Town Planning Board constitutes an agreement between the Town and the Developer, incorporating the Plan and supporting documentation, the Findings of Fact, and any Conditions of Approval.

The Planning Board authorizes the Planning Board Chairperson sign the Final Plan and the Findings of Fact upon confirmation of compliance with any conditions of approval.

Vote of 0 in favor 0 against 0 abstaining

APPROVED BY THE KITTERY PLANNING BOARD ON _____

Ann Grinnell, Planning Board Chair

Per Title 16.6.2.A - An aggrieved party with legal standing may appeal a final decision of the Planning Board to the York County Superior Court in accordance with Maine Rules of Civil Procedures Section 80B, within forty-five (45) days from the date the decision by the Planning Board was rendered.

Chris DiMatteo

From: William Straub <wstraub@cmaengineers.com>
Sent: Wednesday, February 03, 2016 3:42 PM
To: Chris DiMatteo
Cc: Jodie Bray Strickland
Subject: Yankee Common - Review of Material Submitted January 28, 2016. Review #5

Chris,

We have reviewed the material submitted by Civil Consultants on January 28, 2016 in response to Town comments and CMA Engineers' comments included in our letter dated January 7, 2016 (Review #4). That letter followed the project review meeting held January 5, 2016 among you, Tom Harmon and Jay Stephens, and me.

Subject to the comments below, the applicant has addressed all the issue included in our January 7, 2016 letter.

- The Earth/Rock Removal Operations Plan has been updated, and incorporates the modifications discussed at our Jan 5 meeting. They propose a series of Appendices which include the State and Federal regulations that may apply to the operations. (The appendices were not included in the copy that we reviewed). However, we had discussed a the applicant preparing a summary table of critical issues for compliance. That was not done, and may be pursued with the applicant in a final document.
- Regarding the Kittery Open Space Committee issues, the plans meet the requirement for open space in the Ordinance. However the mechanisms for possibly incorporating the open space in easements held by the Town have not been resolved, due to Town decision making. This does not affect the viable option of setting aside the land by applicant under its control, with appropriate deed restrictions.
- The Kittery Conservation Commission comments regarding potential changes in groundwater conditions after construction have not been fully resolved with the KCC. We understand that the applicant will have their specialist from SW Cole present at the next Planning Board meeting to further address these issues.

If you have any questions, please do not hesitate to contact us.

Best,

Bill

Bill Straub, PE

CMA
ENGINEERS
(603) 431-6196



CMA ENGINEERS, INC.
CIVIL/ENVIRONMENTAL ENGINEERS
35 Bow Street
Portsmouth, New Hampshire
03801-3819

January 7, 2016

Phone: 603/431-6196
Fax: 603/431-5376

Chris DiMatteo, Town Planner
Town of Kittery
P.O. Box 808
Kittery, Maine 03904

E-mail: info@cmaengineers.com
Web Site: www.cmaengineers.com

**RE: Town of Kittery, Planning Board Services
Yankee Commons Mobile Home Park Expansion Review #4
(Tax Map 66, Lots 24 & 25)
CMA #591.65**

Dear Chris:

CMA Engineers reviewed the following information for the proposed Yankee Commons Mobile Home Park Expansion:

- 1) Yankee Commons Mobile Home Park Expansion (2015); Final Subdivision Review Application, Town of Kittery for Stephen A Hynes, Trustee, c/o Gary Beers 3 Idlewood Lane, Kittery, Maine. (Bound document with attachments).
- 2) Final Plan Set dated 11/19/15

We attended a meeting on Tuesday, January 5, 2016 to review our comments and discuss project issues. Attendees included you, Tom Harmon, PE and Jay Stephens PE of Civil Consultants, and me. All the comments offered below were discussed at the meeting.

We have the following comments. They are organized in accordance with the conditions the Planning Board attached to the Preliminary Approval for the project, which was issued on September 10, 2015.

Condition 1 - Modification of road layout to accommodate sidewalk

The final design has been modified to make the on-site roadways "one-way". The paved width is proposed to be 16-ft, with two 2-ft gravel shoulders. A 3-foot wide portion of the pavement will be separated by a painted white line from the rest of the paved lane, to provide a pedestrian walkway. The Kittery Fire and Police chiefs have indicated no objections to this configuration.

In addition, there should be a pedestrian connection between the one-way roads and the community center near Idlewood Lane. Several options were discussed to provide this connection on the divided roadway section ("Road A") and the two-way road section, utilizing similar method of

delineating separated 3-ft pedestrian walkways, with minor modifications to pavement and shoulder width.

Condition 2 - Development of a comprehensive plan for rock removal compliant with applicable provisions of the State of Maine

We understand that the owner's team is negotiating with a contractor for comprehensive services that will include the removal of the earth and rock (drilling, blasting, crushing, transportation), as well as site construction including utilities, roadways, and site work. This is logical and has the advantages of having a single contractor completing the majority of the project in addition to earth/rock removal. We suggest this plan be described, at least generally, for the record.

A document was prepared titled the Earth/Rock Removal Operations Plan. This plan is comprehensive, and addresses most of the issues associated with site preparation. In final form, it can be a guide for the developers, and also assist the Town in monitoring the construction. Review comments include:

- Several other regulatory documents are referenced and they include applicable performance requirements regarding noise, dust, blasting and excavation. The relevant performance requirements in these documents should be summarized in tables or lists within the Plan itself. While tables/lists may not necessarily be definitive of all individual requirements, they would significantly assist in a contractor's compliance, and also with Town monitoring of performance.
- The final plans for trucking and traffic should be included in the Plan (see comments to Conditions 3 and 9 below).
- The proposed routine industry practices for excavation operations included on page 2 of 9 of the introduction section should be incorporated within the Plan itself (nine bulleted items).
- Minor clarifications for consideration:
 - Consistency of 78 units in the project, including 77 residences (introduction),
 - Add park residents and others on Idlewood Lane in Community Relations (section 2.0).
 - Clarify if separate specifications will be part of the contractor's package, or if the specifications are on the plan set (section 3.1.2)
 - Clarify the total anticipated earth/rock removal is 190,000 cy. Apparently 130,000 cy is estimated to be the rock portion (section 3.10.1).
 - Clarify if pumped water is anticipated in this type of excavation (section 3.10.9.3; may be more applicable to traditional quarry excavations).

Condition 3 - Address limits to the daily trucking rate rock removal

Based on preliminary discussions with a contractor, applicant has revised the estimated trucking rate to be 120 trucks per day, with an average of 24 trip ends per hour. (This is an increase from previous estimates, based on different hauling vehicles smaller capacity). While the estimate is realistic, the applicant does not want to commit to a daily limit, to retain flexibility and to not artificially extend the construction period required.

At the meeting on January 5, there was significant discussion of the planned hauling routes. The applicant wishes to maintain reasonable flexibility, however we discussed several possible commitments, including:

- All loaded trucks proceed from site east on Idlewood Lane to Route 1
- No other use of local (town-owned) roads. All to be I-95 or State highways
- Northbound
 - All northbound trucks proceed south on Route 1 to I-95 service center entrance, proceed through center and proceed on I-95 North.
- Southbound
 - Proceed south on Route 1 to I-95 or Route 236 as soon as possible.
 - Use I-95 for maximum practical trips.
- Unloaded and Returning to Site
 - Use I-95 for maximum possible trips.
 - Use service center connection to Route 1 south of site
 - Proceed north on Route 1 to Idlewood Lane
 - Enter site off Idlewood Lane

Condition 4 - Develop a mitigation plan for Idlewood Lane damage, including financial assurance....

As noted above, all trucking is to be limited to the portion of Idlewood Lane to the east, between the site and Route 1. This includes 300 to 400 feet of roadway.

The applicant has agreed to document conditions of Idlewood Lane pre-construction, and commit to repairing/reconstructing the roadway as may be needed to meet the requirements of the Commissioner of Public Works after construction is completed.

Final mechanisms for financial assurance need to be established.

Condition 5 - Amendment of traffic report to address traffic questions in CMA's September 1 letter.

The items described under condition 3 address many of the issues included under traffic in our September 1 letter, in terms of understanding the likely and preferred routes for trucking associated with site development.

In response to our questions regarding the reasons for installing to rectangular rapid flashing beacons (RRFBs) in the shopping area of route one south of the site, the applicant has confirmed that the offer to install them at crosswalks is not associated with mitigating effects of additional traffic due to the project. They have indicated that the offer is a "good neighbor" gesture due to existing conditions.

Condition 6 – Provide an estimate of the level of diesel emissions at the site with respect to.....

The applicant has retained AMEC Foster Wheeler Environment and Infrastructure, Inc. of Portland, ME to complete an evaluation of air quality impacts related to construction activities at the Yankee common's expansion site. The report was recently submitted, and includes estimates of the emission of several parameters (including those listed in the planning board Condition 6), models those emissions in accordance with conventional methodology, and analyzes modeled impacts to ambient air quality. The report concludes that activities at the site will not result in off-site exceedances of national ambient air quality standards (NAAQS) accepted by Maine DEP, and US EPA. We are completing a final detailed review of this report.

Condition 7 - Supply input from the open space committee

There was discussion of issues surrounding the proposed conservation easement associated with the site. The issue remains to be resolved between the applicant, and various Kittery representatives.

Condition 8 - Respond to the concerns of the Conservation commission in writing.

The Conservation Commission has raised questions of effect of rock removal on the groundwater regime, and its effect on the surrounding wetlands. On behalf of the applicant, S.W. Cole completed an evaluation contained in a report and letter that responded to the questions raised by the commission. The report is well-reasoned and concludes that the effects to the groundwater regime, if any, will be minimal and not affect the wetlands. The Conservation Commission has remaining questions regarding data used and the basis for conclusions. We suggest additional explanation, based on the work completed, be offered to further respond to Conservation Commission questions.

Condition 9 - Address traffic concerns about removal of materials.

This issue has been addressed under Conditions 2, 3, 4 and 5.

Should you have any questions, please do not hesitate to call.

Very truly yours,

CMA ENGINEERS, INC.



William A. Straub, P.E.

Project Engineer

cc: Tom Harmon, Civil Consultants



**CIVIL
CONSULTANTS**

*Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine
03908
207-384-2550*

January 28, 2016

Mr. Christopher DiMatteo, Town Planner
Town of Kittery
200 Rogers Road
Kittery ME 03904

**Re: Yankee Commons Mobile Home Park Expansion (Tax Map 66, Lots 24 & 25)
Idlewood Lane, Kittery, Maine**

Dear Mr. DiMatteo:

Please find enclosed supplemental information for the Planning Board's consideration of the subject project.

It is our opinion that the materials address the concerns expressed by the Staff and the Town peer review engineer during their review of the application materials submitted on 19 November 2015 as well as comments made at the planning board meeting on 10 December 2015.

The materials attached include:

- Comment Response commentary to both staff & peer review engineer comments (to include 7 revised plans sheets impacted by the responses)
- Memo regarding stormwater analysis "hints"
- Revised Earth Rock Removal Plan (ERRP) (dated 02-11-16)
- Maine IF&W letter regarding New England Cottontail Rabbit (none found/no mitigation required)
- AMEC Air Study (project will not generate emissions that exceed national standards)

We look forward to meeting with the Planning Board to continuing the review process. Should you have any questions or need further information, please call.

Very truly yours,
CIVIL CONSULTANTS

Thomas W. Harmon, PE
Principal

Enclosures

cc: Gary Beers, Brian Rayback, gray binder, file

1 STAFF REVIEW (PRN-Yankee Commons-12-10-2015)

2 **1. Modification to the road layout to accommodate sidewalk**

3 The revised one-way traffic road layout does provide for the additional width the Board was requesting to
4 accommodate a safe and designated area for pedestrians, and would appear to conform to Title
5 16.8.12.3.M that requires walkways that connect the units to all service and recreational facilities.
6 Though it is clear from the Detail Sheet (R6) that there is a 3-foot wide area designated on the typical one-
7 way road section, the extent of the walk way is not clear since it does not seem to be located on any plans.
8 The typical two-way road section does not include the same accommodation for pedestrians as does the
9 one-way section. The applicant should address this. In addition, the proposed on-street parking should
10 reflect the one-way nature of the road design and be constructed at an angle rather than perpendicular.

11 **RESPONSE:** This has been clarified on the plans (see Peer Review Engineer Condition 1 Response for
12 further details)

13 **2. Development of a comprehensive plan for earth rock removal that complies with applicable**
14 **provisions of the State of Maine**

15 The applicant has provided a draft operations plan that addresses the questions raised as to how the
16 construction operation would be accountable to the various performance standards required for a safe and
17 healthy construction site. The draft plan is very helpful in understanding the complexity and scale of the
18 proposed construction.

19 Staff spoke to MDEP, Bureau of Land and Water Quality, with regard to blasting. It appears that the state
20 a number of years back revised the law to include the specific blasting performance standards for
21 commercial rock quarries (490-Z in Title 38) since they found there were excessive blasting used at large-
22 scale development projects. So the proposed earth removal for the project as it relates to blasting will
23 receive the same scrutiny has a commercial application, however, there may be nuances that should be
24 reviewed that should be modified to relate the uniqueness of the mobile home park site. Blasting
25 monitoring for example, is required to include stations established at the closest structures outside the
26 control of the developer. It would seem prudent to ensure that the structures on the existing mobile home
27 park be included in the monitoring.

28 Staff recommends that the final operations plan, especially the blasting plan, receive review and approval
29 in some manner by the Town. Perhaps at a minimum the Town's peer-review engineer with input by
30 pertinent department heads.

31 **RESPONSE:** The Earth Rock Removal Plan (ERRP) has been significantly modified based upon staff &
32 peer review engineer comments as well as a joint meeting of the designer, town planner and peer review
33 engineer. It is our opinion that the ERRP attached hereto reflects and addresses the collective comments.
34 Copies of all blasting plans will be provided to the town. (see Peer Review Engineer Condition 2
35 Response for further details).

36 **3. Address limits to the daily trucking rate for rock removal**

37 The applicant has provided insight as to what the likely quantity of truckloads during construction and
38 their position with regard to constraining this aspect of the proposed construction. In summary, Title 16
39 does not specifically address construction traffic and if MDOT rules and standards are not triggered by
40 their review any constraints would be not supported by local and state regulation and would be arbitrary.

41

42 In the absence of comments from CMA, staff has the following comments.

43 1) It appears that the number of estimated truckloads per day have increased from the prior submittal
44 information from 68 to 120. This would yield 240 roundtrips or 24 per hour (based on a 10 hour (7:00 am
45 to 5:00 pm) day. With this in mind it is not clear why on line 83 does the applicant state that it would be
46 “not feasible” to create the 25 truck round trips in an hour, needed to require a permit. 24 truckloads is
47 very close to 25.

48 2) As stated under condition 2 above with review and approval of the final operations plan, staff
49 recommends that the final details on hauling the extracted and excavated material should be reviewed and
50 approved in some manner by the Town.

51 3) Staff interprets Title 16.10.8.2.1 providing authority to the Planning Board to condition a final plan
52 with restrictions that ultimately furthers the overall purpose of the town’s land use code; “...to promote
53 the health, safety and general welfare of its residents.”

54 **RESPONSE:** The latest ERRP further clarifies trucking rates and reflects joint discussions with the town
55 planner and town peer review engineer. (see Peer Review Engineer Condition 3 Response for further
56 details).

57 **4. Development of a mitigation plan for Idlewood Lane damage, including financial assurance and**
58 **concurrence with Kittery Commissioner of Public Works**

59 It appears the Applicant is in agreement with the notion for repairing Idlewood Lane where it is evident
60 that the proposed development’s construction is the cause. As mentioned earlier, staff recommends along
61 with a condition of approval that identifies the constraint on traveling south on Idlewood with
62 construction vehicles and the street repair by the developer when construction is completed, the plan is
63 revised to show the likely extent of the street that will be impacted and expected to be repaired or
64 reconstructed if need be to the satisfaction of the Public Works Commissioner.

65 **RESPONSE:** References to repairs to Idlewood Lane have been added to the plans (see Peer Review
66 Engineer Condition 4 Response for further details)

67 **5. Amendment to traffic report to address traffic questions in the CMA’s September 1st letter**

68 CMA plans to address this in time for the next meeting.

69 **RESPONSE:** We have met with CMA and discussed their questions – please see Peer Review Engineer
70 Condition 5 response for further details.

71 **6. Provide an estimate of the level of diesel emissions at the site with respect to particulates, nitrous**
72 **oxides, carbon monoxide, volatile organic compounds and ozone**

73 As with construction traffic the applicant finds that Title 16 does not specifically address air quality with
74 much specificity. That being the case, local regulations are met since there are state and federal
75 regulations applicable to the proposed development and required by the project’s MDEP Site Law
76 Development permit. Staff tends to concur with this and the applicant has demonstrated they are actively
77 considering the manner in which they will comply with the air quality related regulations in their plans to
78 engage AMEC Foster Wheeler (enclosure 9 in Section 5 of the submittal book). It is presumed the study
79 will be available to the Board at the next meeting. Staff suggests that perhaps the consultant can identify
80 the manner in which air quality may be monitored over the course of the construction period so that it is
81 evident that compliance with the regulations is feasible over the duration.

82

83 **RESPONSE:** We have provided an Air Quality Analysis for the site which shows that the proposed
84 activities will conform to national air quality standards. We have included provisions in the ERRP to
85 address dust control. Please see Peer Review Engineer Condition 6 response for further discussion.

86 **7. Supply input from the Open Space Committee**

87 Staff has provided the latest copy of the Report to Council (RTC 11/27) regarding the conservation
88 easement the applicant is seeking with the town. Along with the earlier version (enclosure 10 in Section 5
89 of the submittal book) the applicant included a memo from the Kittery Open Space Advisory Committee
90 (KOSAC) that supports the proposal with some “caveats”. In addition to this staff has included an email
91 that Steve Hall, a KOSAC member, provided in hope to clarify that the entire committee was not in
92 attendance and also not in agreement with the final outcome and wanted the Planning Board to know.

93 Some initial observations staff has at this point in time:

94 1) It appears that the required open space (10% of the total area of the lots) is not included in the proposed
95 conservation easement (though there is a slight difference in totals between Sheet S1 and the exhibit OSP
96 that is attached to the RTC). This may be important with regard to how the Board might consider the
97 proposed conservation easement to the town.

98 2) It is not clear how having the Town hold the easement would enhance or be required for the
99 preservation of the proposed conservation area. It seems that a deed restriction and a resource
100 management/conservation plan for the park management to execute along with a public access easement
101 for the trail would achieve the same goal. In this way the property owner has total control of the property.
102 It is not clear to what extent the proposed conservation area is required by MDEP’s stormwater
103 permitting.

104 3) If the town is to except the open space conservation easement this would be the first of its kind for the
105 Town. A thorough analysis should be made and the forthcoming management plan vetted so that
106 expectations are clear for all parties involved.

107 **RESPONSE:** At its regular meeting on Dec 10, 2015, the Kittery Town Council voted to postpone Town
108 consideration of the Conservation Easement Cession Offer until after such time as a development plan
109 may be approved.

110 The open space area being provided to meet the requirement for 10% open space is not within the area
111 proposed for the Conservation Easement. The Conservation Easement Cession Offer has no bearing on
112 Open Space deliberations.

113 **8. Respond to the concerns from the Conservation Commission in writing**

114 The applicant has responded to the questions raised by the KCC and CMA, peer-review engineer plans to
115 provide comment in time for the next meeting.

116 **RESPONSE:** This item was discussed jointly with the town planner and the town peer review engineer.
117 While our geotechnical engineer has written several letters regarding his opinion, we are planning to have
118 him attend a planning board meeting where he can better explain the details to the planning board.

119

120 **9. Address traffic concerns about removal of material**

121 As stated previously, staff recommends that hauling routes as part of the operations plan should be
122 reviewed and approved by the Town in some manner. In addition, staff is discussing with the MDOT
123 what opportunities there may be for the truck haulers to use the turnpike rest area as a way to limit the
124 amount of construction traffic in the southerly portion of Route One.

125 **RESPONSE:** This issue has been addressed under Conditions 2, 3, 4 and 5, as further noted by CMA in
126 their comments letter of January 7, 2016.

127 3) Draft Rules and regulations. Staff recommends that along with the open space restrictions that is
128 noted as forthcoming, a section on the requirements of the state’s MDEP Site Location and Development
129 Permit should be added to provide an understanding of the restrictions and the context for the copy of the
130 actual permit presumably each tenant must receive.

131 **RESPONSE:**

132 The following will be added to the Park Rules, subject to Planner concurrence that it addresses this issue
133 as expected:

134 **YCE DRAFT RULES & REGULATIONS**

135 **K. CARE OF GROUNDS.**

136 11. All Park residency applicants will be provided a copy of Maine Department of Environmental
137 Protection (MeDEP) Site Location of Development permit, including the standard conditions, and a
138 copy of the approved Park open space plan at least 14 days prior to the date of closing on the sale or
139 lease of the lot. Applicants will also be provided a copy of the signed and dated approved plan
140 restrictive covenants required under the MeDEP approval. The Park maintains a file containing the
141 signed and dated statements by lot buyers or lessees acknowledging that they have received and read
142 their copy of this permit and the open space plan prior to the closing on their occupancy.

143 All residents and their visitors will honor all permit conditions and covenants at all times and report
144 observed violations to the Park manager.

145 *This section will be amended upon final plan approval to address the following, to be reviewed and*
146 *approved by the Planning Department:*

147 **NOTE:** UPON COMPLETION OF THE PARK DEVELOPMENT THE RULES WILL BE
148 AMENDED TO INCLUDE THE WALKING TRAIL LAYOUT; HOW THE OPEN SPACE IS TO BE
149 USED AND MAINTAINED; AND WHAT CONDITIONS APPLY TO ITS USE. THE AREA TO BE
150 DEDICATED OPEN SPACE OR RECREATION WILL BE SPECIFIED; AND THE CENTRAL
151 FACILITY AMENITIES WILL BE PUBLISHED.

152 4) There are some various comments for minor plan revisions that staff plans to discuss with the
153 applicant’s agent prior to the next meeting. The completed application form (Section 1 in the Submittal
154 Book) includes the waiver requests that the Board should take the opportunity to consider. It does not
155 appear the second and third requests (16.10.5.2.C.6 and 16.8.12.3.S) require a waiver since the both have
156 the option for the peer-review engineer to review and find compliant rather than the York County Soil
157 and Water Conservation District.

158 **RESPONSE:** Concur

159

160 Waiver request for 16.10.5.2.A.2 is for plan scale and seems reasonable. The last request, 16.8.12.3.I.4
161 regarding the minimum 50-foot radius reduced to 30 feet, appears to not create any apparent safety issues,
162 however, staff would like to confirm with the Fire Chief.

163 **RESPONSE:** Concur

164 **PEER REVIEW ENGINEER NOTES January 7, 2016**
165 **(591 65-Kittery-DL-160107-Yankee Commons MHP-Rev4 WAS)**

166 **Condition 1 - Modification of road layout to accommodate sidewalk**

167 The final design has been modified to make the on-site roadways “one-way”. The paved width is
168 proposed to be 16-ft, with two 2-ft gravel shoulders. A 3-foot wide portion of the pavement will be
169 separated by a painted white line from the rest of the paved lane, to provide a pedestrian walkway. The
170 Kittery Fire and Police chiefs have indicated no objections to this configuration.

171 In addition, there should be a pedestrian connection between the one-way roads and the community center
172 near Idlewood Lane. Several options were discussed to provide this connection on the divided
173 roadway section (“Road A”) and the two-way road section, utilizing similar method of delineating
174 separated 3-ft pedestrian walkways, with minor modifications to pavement and shoulder width.

175 **RESPONSE:** All of the Typical Road Cross-Sections shown on Plan Sheet R6 now include provisions
176 for Walkways.

177 **Condition 2 - Development of a comprehensive plan for rock removal compliant with applicable**
178 **provisions of the State of Maine**

179 We understand that the owner’s team is negotiating with a contractor for comprehensive services that will
180 include the removal of the earth and rock (drilling, blasting, crushing, transportation), as well as site
181 construction including utilities, roadways, and site work. This is logical and has the advantages of
182 having a single contractor completing the majority of the project in addition to earth/rock removal.
183 We suggest this plan be described, at least generally, for the record.

184 **RESPONSE:** The Earth Rock Removal Plan (ERRP) introduction has been expanded to reflect that the
185 ERRP applies to the entire project (i.e. includes both the excavation portion and continues with the site
186 development).

187 A document was prepared titled the *Earth/Rock Removal Operations Plan*. This plan is comprehensive,
188 and addresses most of the issues associated with site preparation. In final form, it can be a guide for the
189 developers, and also assist the Town in monitoring the construction. Review comments include:

190 Several other regulatory documents are referenced and they include applicable performance
191 requirements regarding noise, dust, blasting and excavation. The relevant performance requirements in
192 these documents should be summarized in tables or lists within the Plan itself. While tables/lists may not
193 necessarily be definitive of all individual requirements, they would significantly assist in a contractor’s
194 compliance, and also with Town monitoring of performance.

195 **RESPONSE:** The standards we believe apply to this project are included as appendices to the ERRP and
196 we have highlighted the applicable provisions within those standards.

197 The final plans for trucking and traffic should be included in the Plan (see comments to Conditions
198 3 and 9 below).

199 **RESPONSE:** See revised Earth/Rock Removal Operations Plan – Section 1.3.10

200

**YANKEE COMMONS EXPANSION – PLANNER- PEER REVIEWER COMMENTS – RESPONSE
012816**

201 The proposed routine industry practices for excavation operations included on page 2 of 9 of the
202 introduction section should be incorporated within the Plan itself (nine bulleted items).

203 **RESPONSE:** See revised Earth/Rock Removal Operations Plan – Section 3.10

204 Minor clarifications for consideration:

205 - Consistency of 78 units in the project, including 77 residences (introduction),

206 **RESPONSE:** See revised Earth/Rock Removal Operations Plan – Section 1.0

207 - Add park residents and others on Idlewood Lane in Community Relations (section 2.0).

208 **RESPONSE:** See revised Earth/Rock Removal Operations Plan – Section 2.0

209 - Clarify if separate specifications will be part of the contractor’s package, or if the specifications are
210 on the plan set (section 3.1.2)

211 **RESPONSE:** See revised Earth/Rock Removal Operations Plan – Section 3.1.2

212 - Clarify the total anticipated earth/rock removal is 190,000 cy.

213 Apparently 130,000 cy is estimated to be the rock portion (section 3.10.1).

214 **RESPONSE:** See revised Earth/Rock Removal Operations Plan – Section 1.0 and 3.10.1

215 - Clarify if pumped water is anticipated in this type of excavation (section 3.10.9.3; may be
216 more applicable to traditional quarry excavations).

217 **RESPONSE:** See revised Earth/Rock Removal Operations Plan – Section 3.10.9.3

218 ***Condition 3 - Address limits to the daily trucking rate rock removal***

219 Based on preliminary discussions with a contractor, applicant has revised the estimated trucking rate to
220 be 120 trucks per day, with an average of 24 trip ends per hour. (This is an increase from previous
221 estimates, based on different hauling vehicles smaller capacity). While the estimate is realistic, the
222 applicant does not want to commit to a daily limit, to retain flexibility and to not artificially extend the
223 construction period required.

224 **RESPONSE:** See revised Earth/Rock Removal Operations Plan – Section 1.0 for rationale

225 At the meeting on January 5, there was significant discussion of the planned hauling routes. The
226 applicant wishes to maintain reasonable flexibility, however we discussed several possible commitments,
227 including:

228 All loaded trucks proceed from site east on Idlewood Lane to Route 1

229 No other use of local (town-owned) roads. All to be I-95 or State highways

230 Northbound

231 - All northbound trucks proceed south on Route 1 to I-95 service center entrance, proceed through center
232 and proceed on I-95 North.

233 Southbound

234 - Proceed south on Route 1 to I-95 or Route 236 as soon as possible.

235 - Use I-95 for maximum practical trips.

236 Unloaded and Returning to Site

237 - Use I-95 for maximum possible trips.

238 - Use service center connection to Route 1 south of site

239 - Proceed north on Route 1 to Idlewood Lane

240 - Enter site off Idlewood Lane

241 **RESPONSE:** These commitments are reflected in the revised Earth/Rock Removal Operations Plan –
242 Section 1.3.10

**YANKEE COMMONS EXPANSION – PLANNER- PEER REVIEWER COMMENTS – RESPONSE
012816**

243 ***Condition 4 - Develop a mitigation plan for Idlewood Lane damage, including financial***
244 ***assurance.....***

245 As noted above, all trucking is to be limited to the portion of Idlewood Lane to the east, between the site
246 and Route 1. This includes 300 to 400 feet of roadway.

247 The applicant has agreed to document conditions of Idlewood Lane pre-construction, and commit to
248 repairing/reconstructing the roadway as may be needed to meet the requirements of the Commissioner of
249 Public Works after construction is completed.

250 Final mechanisms for financial assurance need to be established.

251 **RESPONSE:** In accordance with Title 16, §10.8.2.2, Performance Guaranty Conditions, we
252 acknowledge that, “....as a condition for approval of the final plan, a performance guaranty in a form
253 acceptable to the Town manager”, will be arranged for all necessary guaranty requirements.

254 The plans reflect a requirement for the restoration of Idlewood Lane to the satisfaction of the Public
255 Works Commissioner (Condition of Approval #2 on Plan Sheet S1).

256 ***Condition 5- Amendment of traffic report to address traffic questions in CMA’s September 1 letter.***

257 The items described under condition 3 address many of the issues included under traffic in our
258 September 1 letter, in terms of understanding the likely and preferred routes for trucking associated with
259 site development.

260 In response to our questions regarding the reasons for installing to rectangular rapid flashing beacons
261 (RRFBs) in the shopping area of route one south of the site, the applicant has confirmed that the offer to
262 install them at crosswalks is not associated with mitigating effects of additional traffic due to the project.
263 They have indicated that the offer is a “good neighbor” gesture due to existing conditions.

264 **RESPONSE:** Concur

265 ***Condition 6 – Provide an estimate of the level of diesel emissions at the site with respect to.....***

266 The applicant has retained AMEC Foster Wheeler Environment and Infrastructure, Inc. of Portland, ME
267 to complete an evaluation of air quality impacts related to construction activities at the Yankee
268 common’s expansion site. The report was recently submitted, and includes estimates of the emission of
269 several parameters (including those listed in the planning board Condition 6), models those emissions in
270 accordance with conventional methodology, and analyzes modeled impacts to ambient air quality. **The**
271 **report concludes that activities at the site will not result in off- site exceedances of national ambient**
272 **air quality standards (NAAQS) accepted by Maine DEP, and US EPA.** We are completing a final
273 detailed review of this report.

274 **RESPONSE:** As noted, the AMEC study concludes that the project will conform to national standards
275 (see response to staff comments on this item for more details).

276 ***Condition 7- Supply input from the open space committee***

277 There was discussion of issues surrounding the proposed conservation easement associated with the site.
278 The issue remains to be resolved between the applicant, and various Kittery representatives.

279 **RESPONSE:** Please see response to staff comments on this item for more details.

280

281

**YANKEE COMMONS EXPANSION – PLANNER- PEER REVIEWER COMMENTS – RESPONSE
012816**

282 **Condition 8 - Respond to the concerns of the Conservation commission in writing.**

283 The Conservation Commission has raised questions of effect of rock removal on the groundwater regime,
284 and its effect on the surrounding wetlands. On behalf of the applicant, S.W. Cole completed an
285 evaluation contained in a report and letter that responded to the questions raised by the commission. The
286 report is well-reasoned and concludes that the effects to the groundwater regime, if any, will be minimal
287 and not affect the wetlands. The Conservation Commission has remaining questions regarding data used
288 and the basis for conclusions. We suggest additional explanation, based on the work completed, be
289 offered to further respond to Conservation Commission questions.

290 **RESPONSE:** We propose that the geotechnical engineer who looked at this issue should meet with the
291 Planning Board to explain his conclusions (please see response to staff comments on this item for more
292 details).

293 **Condition 9 - Address traffic concerns about removal of materials.**

294 This issue has been addressed under Conditions 2, 3, 4 and 5.

295 **RESPONSE:**

296 No response necessary.

SITE NO.	AREA (SQ.FT.)	AREA (ACRES)	SITE NO.	AREA (SQ.FT.)	AREA (ACRES)
1	5,123	0.12	41	6,127	0.14
2	5,080	0.13	42	6,357	0.15
3	5,578	0.13	43	6,343	0.15
4	5,540	0.13	44	5,532	0.13
5	5,463	0.13	45	6,247	0.14
6	5,891	0.13	46	6,076	0.14
7	5,178	0.13	47	5,260	0.12
8	6,048	0.13	48	5,814	0.13
9	7,815	0.17	49	5,722	0.13
10	5,257	0.12	50	7,120	0.16
11	7,853	0.18	51	7,536	0.17
12	5,743	0.13	52	7,466	0.17
13	5,422	0.12	53	6,222	0.14
14	5,072	0.12	54	5,278	0.12
15	5,363	0.12	55	5,232	0.12
16	5,361	0.12	56	7,458	0.17
17	5,386	0.12	57	5,360	0.12
18	5,776	0.13	58	5,360	0.12
19	7,660	0.18	59	5,360	0.12
20	5,147	0.12	60	6,148	0.14
21	5,444	0.12	61	10,887	0.25
22	5,382	0.12	62	6,417	0.22
23	6,406	0.15	63	8,940	0.21
24	5,810	0.14	64	6,854	0.16
25	5,222	0.12	65	5,428	0.12
26	5,267	0.12	66	7,286	0.17
27	5,526	0.13	67	6,115	0.21
28	5,588	0.13	68	5,184	0.21
29	5,911	0.14	69	7,556	0.17
30	6,068	0.14	70	5,360	0.12
31	7,194	0.17	71	5,832	0.13
32	7,207	0.16	72	5,840	0.13
33	7,223	0.16	73	5,818	0.13
34	7,236	0.16	74	5,825	0.13
35	8,255	0.19	75	5,870	0.13
36	7,859	0.18	76	5,829	0.13
37	5,480	0.13	77	5,811	0.13
38	5,360	0.12	78	5,491	0.13
39	5,681	0.13			
40	6,941	0.16			

OPEN SPACE LEGEND:

OPEN SPACE PROPOSED FOR CONSERVATION EASEMENT

OPEN SPACE TO BE MANAGED BY MOBILE HOME PARK MANAGEMENT

SETBACK LEGEND:

NON-DISTURBANCE SETBACK

75' EMERGENT WETLAND SETBACK

100' STREAM SETBACK

25' WETLAND SETBACK

100' BUILDING SETBACK

LEGEND

N/F NOW OF FORMERLY

Y.C.R.D. YORK COUNTY REGISTRY OF DEEDS

PROPERTY LINE

APPROXIMATE ADJACENT PROPERTY LINE

DRILL HOLE (AS NOTED)

BOUND (AS NOTED)

EXISTING STONE WALL

EXISTING TREE LINE

MOBILE HOME PARK SITE

MOBILE HOME PARK SITE SETBACK

OWNER:

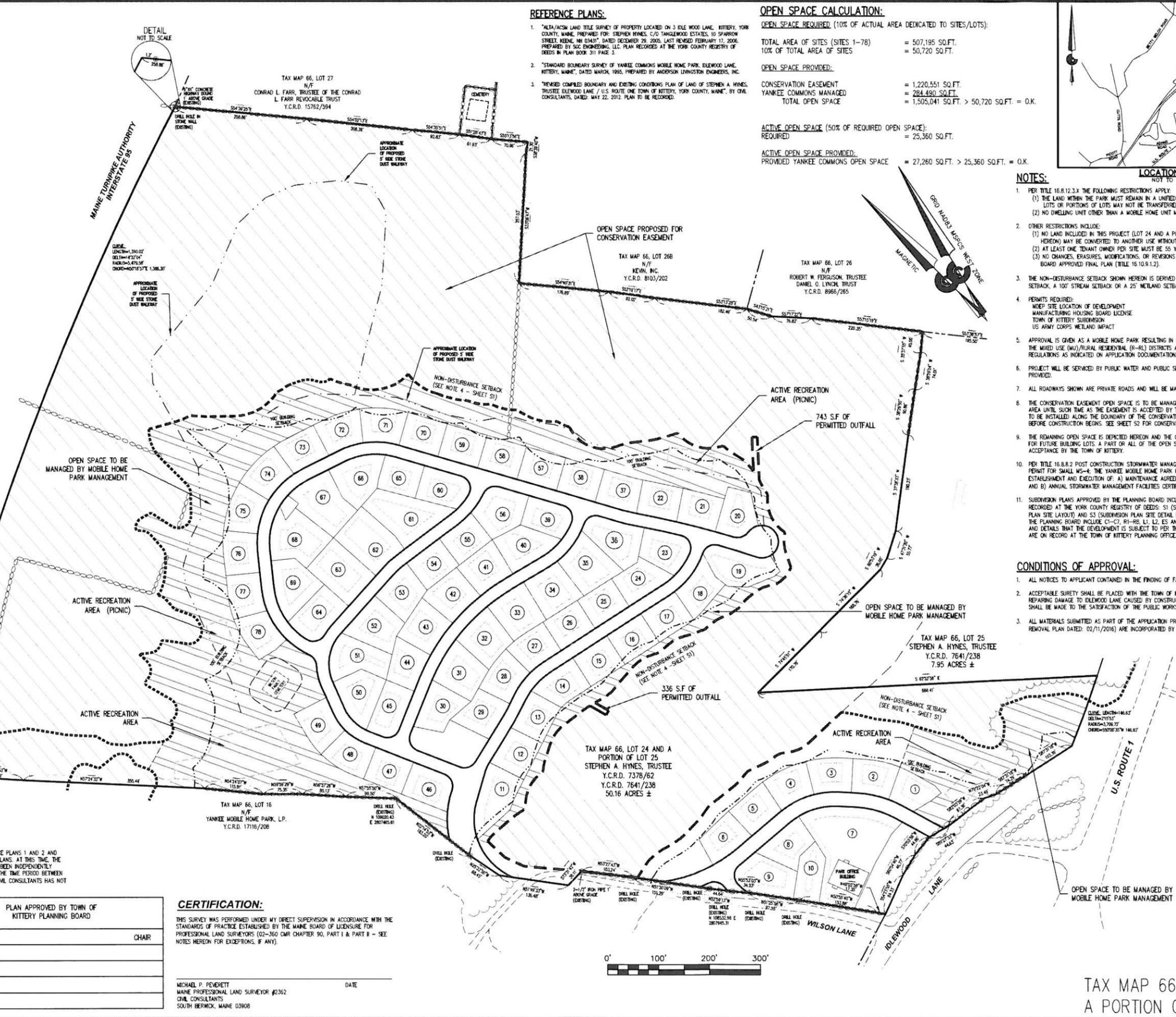
STEPHEN A. HYNES, TRUSTEE
REAL PROPERTY TRUST AGREEMENT
1571 BELLEVUE AVENUE
SUITE 210
WEST VANCOUVER, B.C. V7V1A6

ENGINEER:

CIVIL CONSULTANTS
P.O. BOX 100
293 MAIN STREET
SOUTH BERWICK, ME 03908

SURVEY NOTE:

THE PROPERTY LINES DEPICTED HEREON ARE BASED SOLELY ON REFERENCE PLANS 1 AND 2 AND FIELD LOCATION OF A SAMPLING OF MONUMENTATION DEPICTED ON SAID PLANS. AT THIS TIME, THE POSITION OF EVERY MONUMENT ON REFERENCE PLANS 1 AND 2 HAS NOT BEEN INDEPENDENTLY VERIFIED. DEED RESEARCH BY CIVIL CONSULTANTS HAS BEEN LIMITED TO THE TIME PERIOD BETWEEN MARCH, 1995 (DATE OF REFERENCE PLAN 2) AND NOVEMBER 13, 2015. CIVIL CONSULTANTS HAS NOT PERFORMED AN INDEPENDENT BOUNDARY RETRACEMENT SURVEY.



REFERENCE PLANS:

- "ALTA/ACSM LAND TITLE SURVEY OF PROPERTY LOCATED ON 3 IDLE WOOD LANE, KITTERY, YORK COUNTY, MAINE, PREPARED FOR: STEPHEN HYNES, C/O TANGLEWOOD ESTATES, 10 SPARROW STREET, KEENE, NH 03431", DATED DECEMBER 29, 2005, LAST REVISED FEBRUARY 17, 2006, PREPARED BY SOC ENGINEERING, LLC. PLAN RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 311 PAGE 3.
- "STANDARD BOUNDARY SURVEY OF YANKEE COMMONS MOBILE HOME PARK, IDLEWOOD LANE, KITTERY, MAINE, DATED MARCH, 1995, PREPARED BY ANDERSON LIVINGSTON ENGINEERS, INC.
- "REVISED COMPLETED BOUNDARY AND EXISTING CONDITIONS PLAN OF LAND OF STEPHEN A. HYNES, TRUSTEE IDLEWOOD LANE / U.S. ROUTE ONE TOWN OF KITTERY, YORK COUNTY, MAINE, BY CIVIL CONSULTANTS, DATED: MAY 22, 2012. PLAN TO BE RECORDED.

OPEN SPACE CALCULATION:

OPEN SPACE REQUIRED (10% OF ACTUAL AREA DEDICATED TO SITES/LOTS):

TOTAL AREA OF SITES (SITES 1-78) = 507,195 SQ.FT.
10% OF TOTAL AREA OF SITES = 50,720 SQ.FT.

OPEN SPACE PROVIDED:

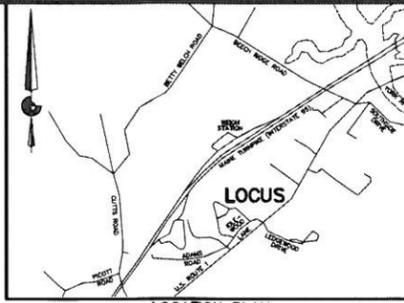
CONSERVATION EASEMENT = 1,220,551 SQ.FT.
YANKEE COMMONS MANAGED = 284,480 SQ.FT.
TOTAL OPEN SPACE = 1,505,041 SQ.FT. > 50,720 SQ.FT. = 0.K.

ACTIVE OPEN SPACE (50% OF REQUIRED OPEN SPACE):

REQUIRED = 25,360 SQ.FT.

ACTIVE OPEN SPACE PROVIDED:

PROVIDED YANKEE COMMONS OPEN SPACE = 27,260 SQ.FT. > 25,360 SQ.FT. = 0.K.



NOTES:

- PER TITLE 16.B.12.3 THE FOLLOWING RESTRICTIONS APPLY:
(1) THE LAND WITHIN THE PARK MUST REMAIN IN A UNIFIED OWNERSHIP AND THE FEE TO LOTS OR PORTIONS OF LOTS MAY NOT BE TRANSFERRED.
(2) NO DWELLING UNIT OTHER THAN A MOBILE HOME UNIT MAY BE LOCATED WITHIN THE PARK.
- OTHER RESTRICTIONS INCLUDE:
(1) NO LAND INCLUDED IN THIS PROJECT (LOT 24 AND A PORTION OF LOT 25 AS SHOWN HEREON) MAY BE CONVERTED TO ANOTHER USE WITHOUT APPROVAL OF THE PLANNING BOARD.
(2) AT LEAST ONE TENANT OWNER PER SITE MUST BE 55 YEARS OF AGE OR OLDER.
(3) NO CHANGES, ERASURES, MODIFICATIONS, OR REVISIONS MAY BE MADE TO ANY PLANNING BOARD APPROVED FINAL PLAN (TITLE 16.10.9.12).
- THE NON-DISTURBANCE SETBACK SHOWN HEREON IS DERIVED FROM A 75' EMERGENT WETLAND SETBACK, A 100' STREAM SETBACK OR A 25' WETLAND SETBACK.
- PERMITS REQUIRED:
MOBILE HOME PARK DEVELOPMENT
MANUFACTURING HOUSING BOARD LICENSE
TOWN OF KITTERY SUBDIVISION
US ARMY CORPS WETLAND IMPACT
- APPROVAL IS GIVEN AS A MOBILE HOME PARK RESULTING IN DIMENSIONAL DIFFERENCES BETWEEN THE MIXED USE (M/U)/RESIDENTIAL (R-R) DISTRICTS AND THE MANUFACTURED HOUSING REGULATIONS AS INDICATED ON APPLICATION DOCUMENTATION.
- PROJECT WILL BE SERVICED BY PUBLIC WATER AND PUBLIC SEWER. UNDERGROUND UTILITIES WILL BE PROVIDED.
- ALL ROADWAYS SHOWN ARE PRIVATE ROADS AND WILL BE MAINTAINED AS PRIVATE ROADS.
- THE CONSERVATION EASEMENT OPEN SPACE IS TO BE MANAGED AS A NO CUT/NO DISTURBANCE AREA UNTIL SUCH TIME AS THE EASEMENT IS ACCEPTED BY THE TOWN OF KITTERY. MARKERS ARE TO BE INSTALLED ALONG THE BOUNDARY OF THE CONSERVATION EASEMENT AS SHOWN HEREON BEFORE CONSTRUCTION BEGINS. SEE SHEET S2 FOR CONSERVATION EASEMENT LAYOUT.
- THE REMAINING OPEN SPACE IS DEPICTED HEREON AND THE OPEN SPACE SHOWN MAY NOT BE USED FOR FUTURE BUILDING LOTS. A PART OR ALL OF THE OPEN SPACE MAY BE DEDICATED FOR ACCEPTANCE BY THE TOWN OF KITTERY.
- PER TITLE 16.B.8.2 POST CONSTRUCTION STORMWATER MANAGEMENT AND THE MOEP GENERAL PERMIT FOR SMALL MS-4, THE YANKEE MOBILE HOME PARK MANAGEMENT IS RESPONSIBLE FOR THE ESTABLISHMENT AND EXECUTION OF: A) MAINTENANCE AGREEMENT FOR STORMWATER MANAGEMENT, AND B) ANNUAL STORMWATER MANAGEMENT FACILITIES CERTIFICATION.
- SUBDIVISION PLANS APPROVED BY THE PLANNING BOARD INCLUDE THE FOLLOWING SHEETS TO BE RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS: S1 (SUBDIVISION PLAN), S2 (SUBDIVISION PLAN SITE LAYOUT) AND S3 (SUBDIVISION PLAN SITE DETAIL LAYOUT). OTHER SHEETS APPROVED BY THE PLANNING BOARD INCLUDE C1-C7, R1-R6, L1, L2, ES AND EP WHICH PROVIDE REQUIREMENTS AND DETAILS THAT THE DEVELOPMENT IS SUBJECT TO PER THE PLANNING BOARD APPROVAL AND ARE ON RECORD AT THE TOWN OF KITTERY PLANNING OFFICE.

CONDITIONS OF APPROVAL:

- ALL NOTICES TO APPLICANT CONTAINED IN THE FINDING OF FACT (DATED: XX/XX/XXXX)
- ACCEPTABLE SURETY SHALL BE PLACED WITH THE TOWN OF KITTERY TO COVER THE COSTS OF REPAIRING DAMAGE TO IDLEWOOD LANE CAUSED BY CONSTRUCTION ACTIVITIES AT THIS SITE. REPAIRS SHALL BE MADE TO THE SATISFACTION OF THE PUBLIC WORKS COMMISSIONER.
- ALL MATERIALS SUBMITTED AS PART OF THE APPLICATION PROCESS (INCLUDING THE EARTH ROCK REMOVAL PLAN DATED: 02/11/2016) ARE INCORPORATED BY REFERENCE INTO THE PROJECT APPROVAL.

PLAN APPROVED BY TOWN OF KITTERY PLANNING BOARD

CHAIR

DATE:

CERTIFICATION:

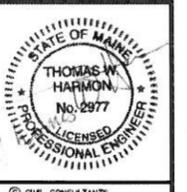
THIS SURVEY WAS PERFORMED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE STANDARDS OF PRACTICE ESTABLISHED BY THE MAINE BOARD OF LICENSES FOR PROFESSIONAL LAND SURVEYORS (02-360 CMR CHAPTER 90, PART 1 & PART 2 - SEE NOTES HEREON FOR EXCEPTIONS, IF ANY).

MICHAEL P. PENNETT
MAINE PROFESSIONAL LAND SURVEYOR #2362
CIVIL CONSULTANTS
SOUTH BERWICK, MAINE 03908

DATE

STATE OF MAINE
YORK COUNTY ss. REGISTRY OF DEEDS
RECEIVED _____ 20____
AT _____ m. _____ a. AND RECORDED IN
PLAN BOOK _____ PAGE _____

ATTEST _____ REGISTER



CIVIL CONSULTANTS

Engineers
Planners
Surveyors

P.O. Box 100
South Berwick
Maine
03908
207-384-2550
civcon@civcon.com

NO.	REVISIONS	DATE
1	REVISE NOTES & LOT 69 AREA, ADD COA 2,3	01/19/15

FINAL PLAN - YANKEE COMMONS MOBILE HOME PARK EXPANSION (2015) IDLEWOOD LANE/ U.S. ROUTE 1 KITTERY, MAINE

PREPARED FOR:
**STEPHEN A. HYNES, TRUSTEE
REAL PROPERTY TRUST AGREEMENT**

MAILING ADDRESS: 1571 BELLEVUE AVE., SUITE 210 WEST VANCOUVER, B.C. V7V1A6

CIVIL CONSULTANTS

DRAWN JAA CALC.

DATE 19 NOVEMBER 2015

CHECKED

APPROVED

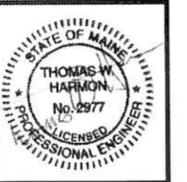
SCALE 1"=100'

SHEET TITLE:
•SUBDIVISION PLAN

SHEET NUMBER:
S1

SHEET 1 of 3

PROJECT # 06-684.02



CIVIL CONSULTANTS
 Engineers
 Planners
 Surveyors
 P.O. Box 100
 South Berwick
 Maine
 03908
 207-384-2550
 civcon@civcon.com

NO.	DATE	REVISIONS
1	JAA 07/19/16	INT.

FINAL PLAN - YANKEE COMMONS
 MOBILE HOME PARK EXPANSION (2015)
 IDLEWOOD LANE/ U.S. ROUTE 1 KITTERY, MAINE
 PREPARED FOR:
 STEPHEN A. HYNES, TRUSTEE
 REAL PROPERTY TRUST AGREEMENT
 MAINE ADDRESS: 1571 BELLEVUE AVE., SUITE 210 WEST WANKOVER, B.C. 07146

CIVIL CONSULTANTS
 DRAWN JAA CALC.
 DATE 19 NOVEMBER 2015
 CHECKED
 APPROVED
 SCALE 1"=50'
 SHEET TITLE:
 • SUBDIVISION PLAN
 SITE DETAIL
 LAYOUT

SHEET NUMBER:
S3
 SHEET 3 of 3
 PROJECT # 06-684.02

RIGHT OF WAY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
RC1	214.00	30.51	30.49	N 35°51'47" W	87°10'12"
RC2	214.00	63.67	63.43	N 49°28'15" W	170°24'41"
RC3	164.00	49.35	49.16	N 65°36'51" W	171°42'28"
RC4	164.00	71.54	70.98	N 86°43'54" W	245°59'38"
RC5	164.00	4.20	4.20	S 80°27'19" W	172°57'57"
RC6	286.00	60.44	60.33	N 85°21'35" E	170°26'30"
RC7	286.00	104.94	104.35	S 78°04'27" E	210°12'24"
RC8	186.00	81.86	81.20	N 44°23'09" W	252°52'55"
RC9	136.00	82.05	80.81	N 74°16'40" W	34°34'06"
RC10	136.00	21.68	21.65	S 83°52'18" W	97°07'57"
RC11	314.00	20.76	20.76	N 81°11'58" E	347°15'
RC12	25.00	41.59	36.96	S 35°26'11" W	95°18'50"
RC13	88.00	27.60	27.48	S 21°12'17" E	175°36'06"
RC14	314.00	20.99	20.99	S 82°20'23" E	349°30'
RC15	25.00	34.19	31.56	N 45°04'47" W	78°21'00"

RIGHT OF WAY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
RC16	112.00	9.21	9.21	S 08°15'40" E	442'49"
RC17	124.00	104.78	101.69	S 13°06'15" E	882'44"
RC18	124.00	75.33	74.17	S 28°38'19" W	344'21"
RC19	50.00	13.21	13.17	S 53°34'36" W	150'14"
RC20	212.00	16.53	16.53	S 67°48'06" W	228'07"
RC21	138.00	53.77	53.43	S 67°48'06" W	875'01"
RC22	138.00	53.77	53.43	S 76°03'23" W	472'33"
RC23	162.00	11.64	11.64	N 85°11'40" E	406'59"
RC24	162.00	94.77	93.42	N 85°11'40" E	3331'05"
RC25	25.00	37.65	34.19	N 87°14'14" E	861'72"
RC26	1786.00	78.94	78.93	N 42°49'41" W	231'46"
RC27	32.00	27.50	26.86	S 86°10'59" W	444'53"
RC28	32.00	19.87	19.87	N 08°48'45" E	161'26"11"
RC29	32.00	23.13	22.63	S 87°02'12" W	412'54"
RC30	27.00	33.15	31.10	S 78°20'00" E	702'30"
RC31	1812.00	37.37	37.37	N 43°54'13" W	110'54"
RC32	1812.00	78.35	78.35	N 45°43'59" W	228'39"
RC33	1812.00	80.71	80.70	N 48°14'53" W	273'07"
RC34	1786.00	73.56	73.55	N 47°41'28" W	221'26"
RC35	25.00	19.87	19.87	N 08°48'45" E	875'01"
RC36	138.00	54.81	54.45	S 67°48'06" W	2245'20"
RC37	138.00	28.03	27.98	N 81°25'58" W	1198'20"
RC38	162.00	34.77	34.71	S 81°06'12" W	121'75"
RC39	162.00	51.68	51.46	S 65°48'56" W	1816'39"
RC40	188.00	14.66	14.66	N 58°54'39" E	428'07"
RC41	25.00	34.98	32.19	S 78°45'25" E	805'43"
RC42	25.00	38.19	36.00	S 67°48'06" W	901'58"
RC43	388.00	9.48	9.48	S 57°35'25" W	123'59"
RC44	388.00	92.24	92.02	S 67°06'03" W	1537'15"
RC45	388.00	88.68	88.49	S 73°27'32" W	1395'43"
RC46	388.00	61.80	61.74	S 84°34'11" W	907'34"
RC47	162.00	19.55	19.54	N 85°40'29" E	654'57"
RC48	162.00	77.93	77.19	N 88°26'06" E	2733'50"
RC49	162.00	13.61	13.61	N 52°14'03" E	872'07"
RC50	25.00	38.19	36.00	S 67°48'06" W	901'58"
RC51	312.00	31.20	31.18	S 48°38'34" E	543'44"
RC52	1786.00	20.42	20.42	N 49°11'49" W	038'15"
RC53	288.00	28.80	28.78	S 48°38'34" E	543'44"
RC54	25.00	41.90	37.16	N 047°24' E	960'12"
RC55	138.00	38.28	38.15	N 60°10'15" E	1553'30"
RC56	138.00	50.67	50.34	S 78°17'25" E	2105'58"
RC57	412.00	61.41	61.22	S 64°35'43" W	838'80"
RC58	412.00	76.20	76.09	S 75°11'33" W	1035'50"
RC59	412.00	76.20	76.09	S 64°35'43" W	1035'50"
RC60	412.00	53.26	53.22	S 55°30'37" W	724'22"
RC61	25.00	39.02	35.17	S 83°24'04" E	8925'01"
RC62	88.00	6.01	6.01	S 36°44'07" E	354'53"
RC63	176.00	55.36	55.13	S 25°33'38" W	1801'17"
RC64	176.00	43.81	43.69	S 41°42'28" W	1415'38"
RC65	112.00	46.05	45.72	N 05°41'11" E	873'28"
RC66	112.00	46.05	45.72	S 26°54'32" E	2313'22"
RC67	112.00	41.31	41.07	S 04°34'15" E	2107'52"
RC68	88.00	62.62	61.31	S 14°23'30" E	4046'21"
RC69	88.00	101.20	95.72	S 38°58'24" W	6553'25"
RC70	138.00	26.87	26.83	S 77°27'50" W	1109'27"
RC71	162.00	34.36	34.29	N 75°50'00" E	1209'07"
RC72	162.00	44.84	44.40	N 63°04'41" E	1545'15"
RC73	25.00	35.37	32.50	N 84°19'45" W	8104'07"
RC74	25.00	45.77	39.64	N 08°38'56" E	10453'16"
RC75	138.00	35.82	35.72	N 68°31'45" E	1452'33"
RC76	138.00	17.04	17.03	N 79°30'15" E	704'36"
RC77	162.00	31.55	31.50	S 77°27'50" W	1109'27"
RC78	112.00	22.49	22.45	S 66°50'00" W	1150'11"
RC79	25.00	40.29	36.00	S 73°13'22" E	2027'37"
RC80	162.00	16.02	16.02	S 11°06'57" E	2046'03"
RC81	138.00	20.22	20.20	N 47°59'30" W	823'35"
RC82	138.00	83.34	82.06	N 65°29'23" W	3436'11"
RC83	138.00	50.88	50.59	S 82°38'50" W	2107'23"
RC84	138.00	25.91	22.00	S 66°42'24" W	1045'30"
RC85	138.00	89.55	87.99	S 42°44'13" W	3705'51"
RC86	138.00	74.38	73.49	S 08°42'04" W	3052'24"
RC87	162.00	71.20	70.63	N 58°23'08" W	2510'52"
RC88	162.00	50.37	50.17	N 77°53'01" W	1748'54"
RC89	162.00	20.18	20.16	S 89°38'26" W	798'10"
RC90	162.00	71.46	70.88	S 73°28'10" W	2516'22"
RC91	162.00	70.04	69.49	S 48°24'52" W	2446'14"
RC92	162.00	33.60	33.54	S 30°05'17" W	1152'57"
RC93	162.00	44.80	44.80	S 161°32'25" W	15503'37"
RC94	162.00	68.89	68.37	S 03°54'43" E	2421'46"
RC95	162.00	53.14	52.90	S 25°27'28" E	1847'41"
RC96	25.00	27.44	26.08	N 03°24'33" W	6253'31"
RC97	112.00	43.09	42.82	S 17°00'57" W	2202'32"

SITE CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
UC1	230.00	30.54	30.52	N 34°46'04" W	73°36'32"
UC2	230.00	73.47	73.15	N 47°43'22" W	181°04'41"
UC3	230.00	69.40	69.14	N 65°31'02" W	177°17'17"
UC4	230.00	93.85	93.29	N 85°51'40" W	232°24'11"
UC5	230.00	12.56	12.56	S 80°52'14" W	310'48"
UC6	75.00	18.90	18.85	S 63°51'57" W	142°29'29"
UC7	75.00	21.16	21.09	S 79°10'11" W	181°09'57"
UC8	1878.00	84.26	84.25	N 45°48'16" W	234'09"
UC9	1878.00	56.56	56.55	S 79°10'11" W	143'28"
UC10	230.00	30.55	30.53	S 84°04'20" W	736'41"
UC11	230.00	21.48	21.47	S 77°35'27" W	570'05"
UC12	230.00	52.77	52.65	S 68°20'33" W	1308'44"
UC13	230.00	20.15	20.14	S 46°18'18" E	501'07"
UC14	180.00	74.47	73.94	S 26°50'23" E	2342'21"
UC15	180.00	46.81	46.88	S 07°32'11" E	1454'05"
UC16	230.00	96.99	96.27	N 55°58'25" W	2409'38"
UC17	230.00	75.22	74.88	N 77°25'21" W	1814'15"
UC18	230.00	31.63	31.61	S 89°16'07" W	752'48"
UC19	230.00	98.22	97.48	S 73°05'40" W	2428'06"
UC20	230.00	99.72	98.94	S 48°26'23" W	2450'28"
UC21	230.00	49.79	49.70	S 29°49'01" W	1224'14"
UC22	200.00	47.09	46.98	S 16°52'12" W	1329'25"
UC23	200.00	64.27	64.00	S 00°50'07" W	1824'46"
UC24	230.00	11.11	11.11	S 60°23'08" W	246'05"
UC25	230.00	0.39	0.39	N 43°50'39" W	0705'53"

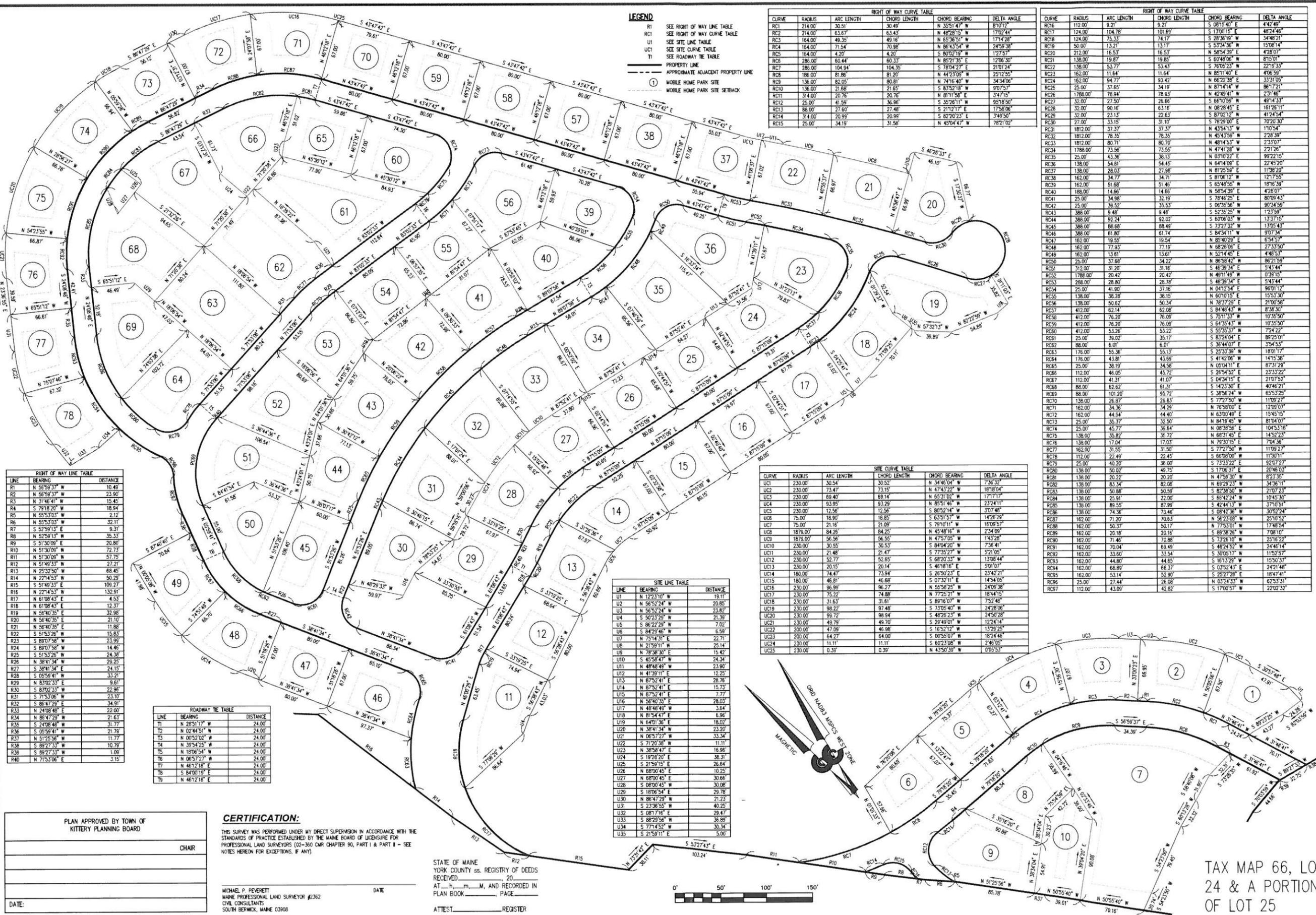
LEGEND
 RC1 SEE RIGHT OF WAY LINE TABLE
 RC2 SEE RIGHT OF WAY CURVE TABLE
 UC1 SEE SITE LINE TABLE
 UC2 SEE SITE CURVE TABLE
 UC3 SEE ROADWAY TABLE
 T1 APPROXIMATE ADJACENT PROPERTY LINE
 --- MOBILE HOME PARK SITE
 --- MOBILE HOME PARK SITE SETBACK

ROADWAY TABLE

LINE	BEARING	DISTANCE
T1	N 28°51'17" W	24.00'
T2	N 02°44'51" W	24.00'
T3	N 00°32'02" W	24.00'
T4	N 39°54'25" W	24.00'
T5	N 18°06'54" W	24.00'
T6	N 06°57'27" W	24.00'
T7	N 46°12'16" E	24.00'
T8	S 84°00'19" E	24.00'
T9	N 46°12'16" E	24.00'

SITE LINE TABLE

LINE	BEARING	DISTANCE
U1	N 12°23'10" W	19.11'
U2	N 56°52'24" W	20.85'
U3	N 56°52'24" W	23.82'
U4	S 50°23'29" W	21.39'
U5	S 86°22'29" W	7.02'
U6	S 64°29'48" W	6.59'
U7	N 75°14'31" E	22.71'
U8	N 21°59'11" W	25.14'
U9	N 78°38'30" E	15.42'
U10	S 45°58'47" W	24.34'
U11	N 48°48'49" W	23.90'
U12	N 47°39'11" E	12.25'
U13	N 87°52'41" E	28.76'
U14	N 87°52'41" E	15.73'
U15	N 87°52'41" E	7.77'
U16	N 56°40'35" E	28.03'
U17	N 48°48'49" W	3.64'
U18	N 81°54'47" E	6.96'
U19	N 64°01'36" E	18.02'
U20	N 38°41'34" W	23.20'
U21	N 06°57'27" W	33.34'
U22	S 71°20'38" W	11.11'
U23	N 38°58'47" E	16.86'
U24	S 19°28'20" E	38.31'
U25	S 21°59'15" E	26.64'
U26	N 68°00'45" E	10.25'
U27	N 68°00'45" E	30.68'
U28	S 08°00'45" W	30.08'
U29	S 18°06'54" E	29.78'
U30	N 86°47'29" W	21.23'
U31	S 23°36'55" W	40.25'
U32	S 08°17'16" E	29.47'
U33	S 88°29'56" W	36.89'
U34	S 77°14'52" W	30.34'
U35	S 21°59'11" E	5.00'



RIGHT OF WAY LINE TABLE

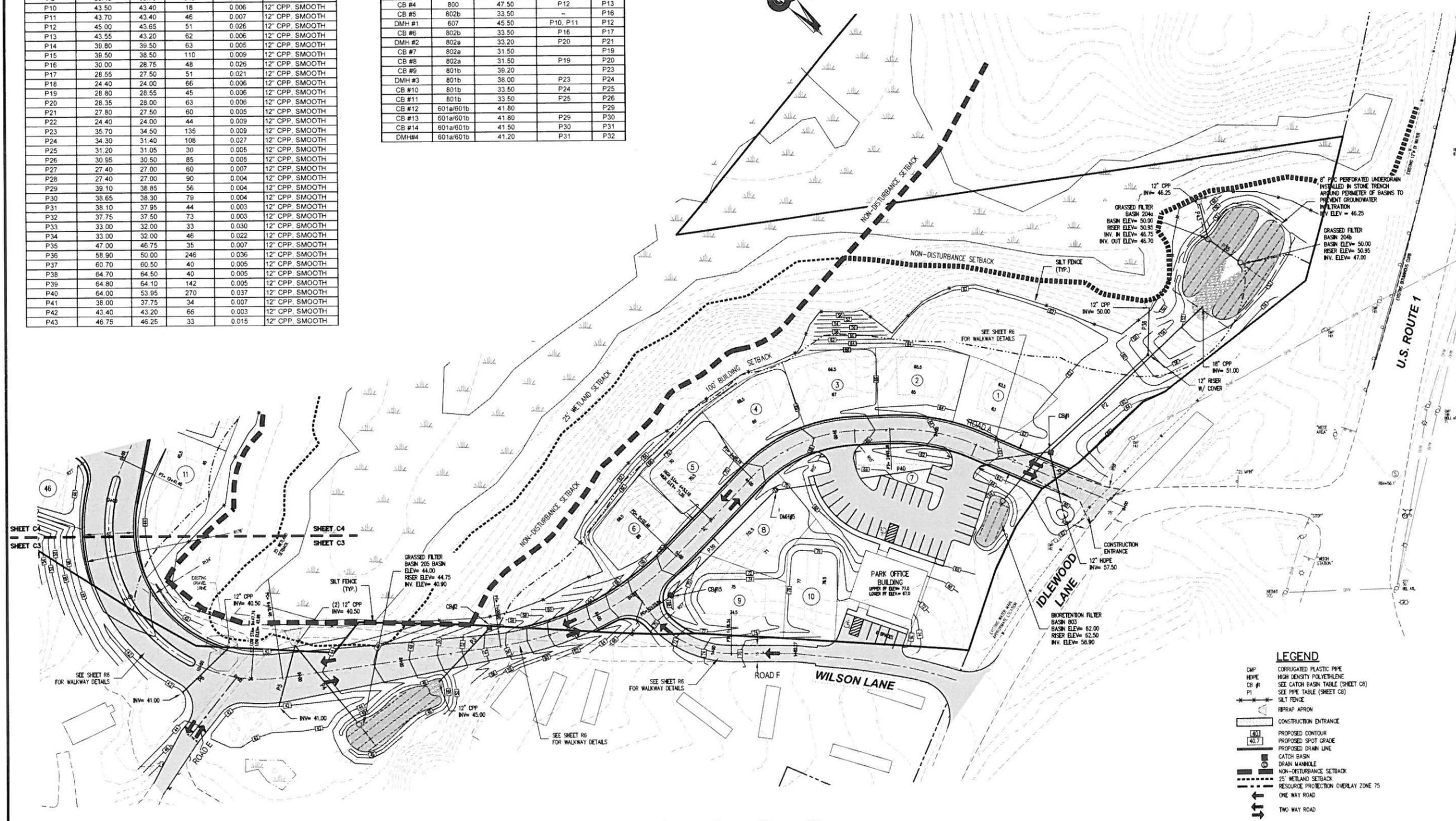
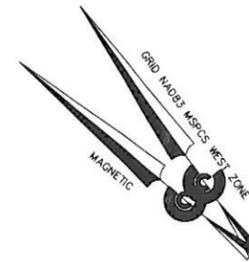
LINE	BEARING	DISTANCE
R1	N 56°59'37" W	15.40'
R2	N 56°59'37" W	23.90'
R3	N 31°46'41" W	15.45'
R4	S 79°18'20" W	18.94'
R5	N 55°53'03" W	2.12'
R6	N 55°53'03" W	32.11'
R7	S 52°59'13" E	9.31'
R8	N 52°59'13" E	35.33'
R9	S 51°30'09" W	20.80'
R10	N 51°30'09" W	72.73'
R11	N 51°30'09" W	57.75'
R12	N 51°49'33" W	27.21'
R13	N	

DRAIN PIPE SCHEDULE

PIPE	INV. IN	INV. OUT	LENGTH (FT)	SLOPE (FT/FT)	MATERIAL
P1	57.50	53.95	57	0.062	12" CPP, SMOOTH
P2	53.85	51.00	206	0.014	18" CPP, SMOOTH
P3	48.00	45.00	71	0.042	12" CPP, SMOOTH
P4	40.90	40.50	110	0.004	12" CPP, SMOOTH
P5	41.00	40.50	59	0.008	12" CPP, SMOOTH
P6	41.00	40.50	66	0.008	12" CPP, SMOOTH
P7	41.50	41.00	93	0.005	12" CPP, SMOOTH
P8	41.20	39.70	101	0.015	12" CPP, SMOOTH
P9	36.45	35.75	348	0.002	12" CPP, SMOOTH
P10	43.50	43.40	18	0.006	12" CPP, SMOOTH
P11	43.70	43.40	46	0.007	12" CPP, SMOOTH
P12	45.00	43.65	51	0.026	12" CPP, SMOOTH
P13	43.55	43.20	62	0.006	12" CPP, SMOOTH
P14	38.80	39.50	63	0.005	12" CPP, SMOOTH
P15	38.50	38.50	110	0.009	12" CPP, SMOOTH
P16	30.00	28.75	48	0.026	12" CPP, SMOOTH
P17	28.55	27.50	51	0.021	12" CPP, SMOOTH
P18	24.40	24.00	66	0.006	12" CPP, SMOOTH
P19	28.80	28.55	45	0.006	12" CPP, SMOOTH
P20	28.35	28.00	63	0.006	12" CPP, SMOOTH
P21	27.80	27.50	60	0.005	12" CPP, SMOOTH
P22	24.40	24.00	44	0.009	12" CPP, SMOOTH
P23	35.70	34.50	135	0.009	12" CPP, SMOOTH
P24	34.30	31.40	108	0.027	12" CPP, SMOOTH
P25	31.20	31.05	30	0.005	12" CPP, SMOOTH
P26	30.95	30.50	85	0.005	12" CPP, SMOOTH
P27	27.40	27.00	60	0.007	12" CPP, SMOOTH
P28	27.40	27.00	90	0.004	12" CPP, SMOOTH
P29	39.10	38.85	56	0.004	12" CPP, SMOOTH
P30	38.65	38.30	79	0.004	12" CPP, SMOOTH
P31	38.10	37.95	44	0.003	12" CPP, SMOOTH
P32	37.75	37.50	73	0.003	12" CPP, SMOOTH
P33	33.00	32.00	33	0.030	12" CPP, SMOOTH
P34	33.00	32.00	46	0.022	12" CPP, SMOOTH
P35	47.00	46.75	35	0.007	12" CPP, SMOOTH
P36	58.90	50.00	246	0.036	12" CPP, SMOOTH
P37	60.70	60.50	40	0.005	12" CPP, SMOOTH
P38	64.70	64.50	40	0.005	12" CPP, SMOOTH
P39	64.80	64.10	142	0.005	12" CPP, SMOOTH
P40	64.00	53.95	270	0.037	12" CPP, SMOOTH
P41	38.00	37.75	34	0.007	12" CPP, SMOOTH
P42	43.40	43.20	66	0.003	12" CPP, SMOOTH
P43	46.75	46.25	33	0.015	12" CPP, SMOOTH

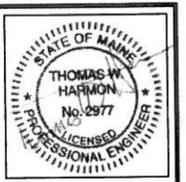
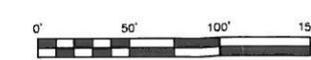
CATCH BASIN SCHEDULE

STRUCTURE	Associated Filter/Pond	RIM ELEV	PIPE IN	PIPE OUT
CB #1	204b	61.20	P1, P40	P2
CB #15	204b	67.80	P39	P39
DMH#5	204b	70.20	P39	P40
CB #2	205	53.00	P3	P3
CB #3	604	45.00	P7	P7
CB #4	800	47.50	P12	P13
CB #5	802b	33.50	-	P16
DMH #1	607	45.50	P10, P11	P12
CB #6	802b	33.50	P16	P17
DMH #2	802a	33.20	P20	P21
CB #7	802a	31.50	P19	P19
CB #8	802a	31.50	P19	P20
CB #9	801b	39.20	P23	P23
DMH #3	801b	38.00	P23	P24
CB #10	801b	33.50	P24	P25
CB #11	801b	33.50	P25	P26
CB #12	601a/601b	41.80	P29	P29
CB #13	601a/601b	41.80	P29	P30
CB #14	601a/601b	41.50	P30	P31
DMH#4	601a/601b	41.20	P31	P32



LEGEND

- CPP CORRUGATED PLASTIC PIPE
- HPPE HIGH DENSITY POLYETHYLENE
- CR #1 SEE CATCH BASIN TABLE (SHEET C8)
- P1 SEE PIPE TABLE (SHEET C8)
- SILT FENCE
- RIPRAP APRON
- CONSTRUCTION ENTRANCE
- PROPOSED CONTOUR
- PROPOSED SPOT GRADE
- PROPOSED DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- NON-DISTURBANCE SETBACK
- 25' WETLAND SETBACK
- RESOURCE PROTECTION OVERLAY ZONE 75
- ONE WAY ROAD
- TWO WAY ROAD

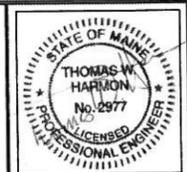
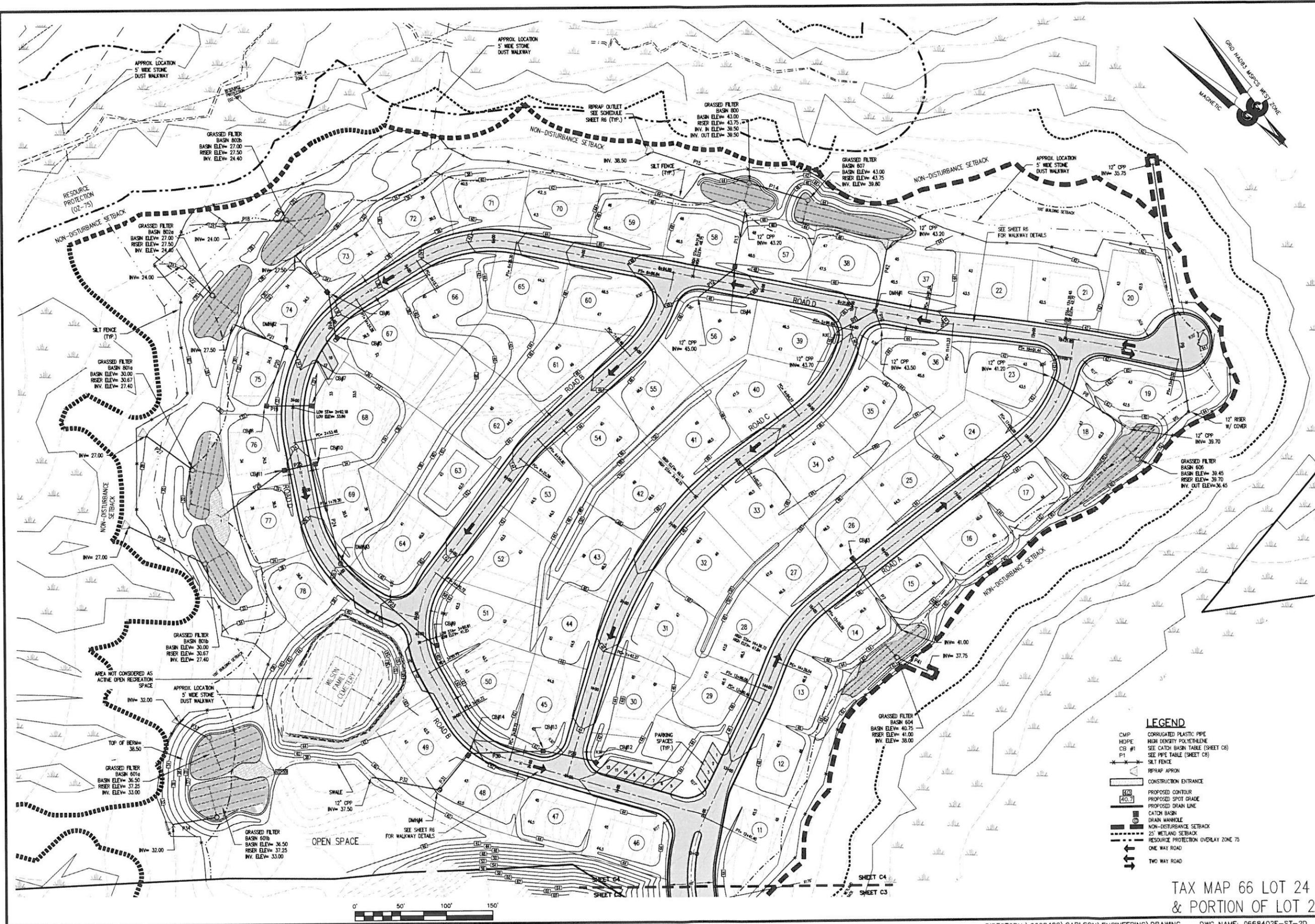


CIVIL CONSULTANTS
 Engineers
 Planners
 Surveyors
 P.O. Box 100
 South Berwick
 Maine
 03908
 207-384-2550
 civcon@civcon.com

NO.	REVISIONS	DATE
1	ADD WALKWAY DETAIL NOTE	07/19/15

FINAL PLAN - YANKEE COMMONS
 MOBILE HOME PARK EXPANSION
 IDLEWOOD LANE/ U.S. ROUTE 1 KITTERY, MAINE
 PREPARED FOR:
 STEPHEN A. HYNES, TRUSTEE
 REAL PROPERTY TRUST AGREEMENT
 MAILING ADDRESS: 1571 BELLEVUE AVE., SUITE 210 WEST VANCOUVER, B.C. V7V1A6

CIVIL CONSULTANTS
 DRAWN GDC/JAA CALC.
 DATE 19 NOVEMBER 2015
 CHECKED
 APPROVED
 SCALE 1"=50'
 SHEET TITLE:
 •GRADING &
 DRAINAGE PLAN
 SHEET NUMBER:
C3
 SHEET C3 of C8
 PROJECT # 06-684.02



CIVIL CONSULTANTS
 Engineers
 Planners
 Surveyors
 P.O. Box 100
 South Berwick
 Maine
 03908
 207-384-2550
 civcon@civcon.com

NO.	REVISIONS	INT.	DATE
1	REVISE PAVING, ADD WALKWAY DETAIL NOTE	JAA	01/19/16

**FINAL PLAN - YANKEE COMMONS
 MOBILE HOME PARK EXPANSION (2015)
 IDLEWOOD LANE/ U.S. ROUTE 1 KITTERY, MAINE**
 PREPARED FOR:
**STEPHEN A. HYNES, TRUSTEE
 REAL PROPERTY TRUST AGREEMENT**
 MAILING ADDRESS: 1571 BELLEVUE AVE., SUITE 210 WEST VANCOUVER, B.C. V7V1A6



DRAWN	GDC/JAA	CALC.
DATE	19 NOVEMBER 2015	
CHECKED		
APPROVED		
SCALE	1"=50'	
SHEET TITLE:	•GRADING & DRAINAGE PLAN	
SHEET NUMBER:	C4	
SHEET C4 of C8		
PROJECT #	06-684.02	

- LEGEND**
- CMP CORRUGATED PLASTIC PIPE
 - HDPE HIGH DENSITY POLYETHYLENE
 - CB #1 SEE CATCH BASIN TABLE (SHEET C8)
 - P1 SEE PIPE TABLE (SHEET C8)
 - SILT FENCE
 - RIPRAP APRON
 - CONSTRUCTION ENTRANCE
 - PROPOSED CONTOUR
 - PROPOSED SPOT GRADE
 - PROPOSED DRAIN LINE
 - CATCH BASIN
 - DRAIN MANHOLE
 - NON-DISTURBANCE SETBACK
 - 25' WETLAND SETBACK
 - RESOURCE PROTECTION OVERLAY ZONE 75
 - ONE WAY ROAD
 - TWO WAY ROAD

MEMORANDUM

TO: Kittery Planning Board
FROM: Jay Stephens, P.E.
SUBJECT: "Hints" printed on stormwater analysis calculations
DATE: 12/14/2015
PROJECT: YANKEE COMMONS EXPANSION (CC# 06684.02)

At the 10 December 2015 Planning Board meeting the board requested an explanation of the "hints" that appeared on the stormwater analysis calculations.

The computer program we use for modeling stormwater is HYDROCAD. The program is based on US Department of Agriculture (USDA) Soil Conservation Service (SCS) Technical Release 20 (TR-20) which is the de facto standard used by state and federal agencies for stormwater analysis. The program can print "Notes", "Hints", and "Warnings" messages which alert the designer to an anomaly that might warrant a refinement of the stormwater model.

Frequently a dummy data point or structure is created to sum component flows. This type of structure is automatically flagged with a warning as it has no geometry associated with it, but, since it is only summing flow components, the warning is irrelevant.

The designer for this project evaluated the various messages as part of his analysis and adjusted components as necessary. All of the notes that were printed in the report provided to the town were considered as insignificant.

The DEP requires that all messages generated by the HDROCAD program be included in materials submitted for their review. As part of their process, they also review and evaluate the calculation messages. Any messages that they consider significant must be re-evaluated by the designer before the DEP permit is approved. Whereas a DEP permit has been issued for this project, all of the messages remaining in the printouts are considered insignificant.



CIVIL
CONSULTANTS

P.O. Box 100 South Berwick, Maine 03908 207-384-2550

EARTH/ROCK REMOVAL OPERATIONS PLAN

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 PROJECT REQUIREMENTS & OBJECTIVES

1.1.1 *Pre-Construction Submittals.*

1.1.2 *Construction Submittals.*

1.1.3 *Definitions*

1.1.4 *Special Considerations.*

1.1.5 *Site Improvements.*

1.2 HEALTH AND SAFETY

Appendix A Site-Specific Health and Safety Plan

1.3 MITIGATION MEASURES

1.3.1 *Health & Safety Plan*

1.3.2 *Air Quality Monitoring*

1.3.3 *Biological Resources Monitoring*

1.3.4 *Cultural Resources Monitoring*

1.3.5 *Hazardous Materials Management*

1.3.6 *Noise Control*

1.3.7 *Underground Utilities*

1.3.8 *Soil Erosion And Sediment Control*

1.3.9 *Storm Water Management*

1.3.10 *Traffic Control and Temporary Parking*

2.0 COMMUNITY RELATIONS

3.0 SCOPE OF WORK

3.1 OVERVIEW

3.1.1 *Construction Deliverables*

3.1.2 *Owner Deliverables*

3.1.3 *Contractor Deliverables*

3.2 SITE SECURITY

3.2.1 *Site Control*

3.2.2 *General Procedures*

3.3 PLANS, PERMITS, & PREMOBILIZATION ACTIVITIES

3.3.1 *Construction Schedules*

3.3.2 *Permits*

3.3.3 *Pre-Mobilization Activities*

3.3.4 *Waste Profiling*

3.9 MOBILIZATION & SITE PREPARATION

3.9.1 *Mobilization*

3.9.2 *Site Preparation*

3.9.3 *Soil Stockpile Site Preparation*

3.10 EXCAVATION OF EARTH/ROCK

- 3.10.1 Demolition
- 3.10.2 Rock Excavation
- 3.10.3 Site Preparation
- 3.10.4 Protection of Nearby Existing Structures
- 3.10.5 Site Security
- 3.10.6 Temporary Construction Facilities and Staging Areas
- 3.10.7 Demarcation of Excavation Area
- 3.10.8 Excavation General.
 - 3.10.8.1 Drilling General
 - 3.10.8.2 Production Blasting
 - 3.10.8.3 Blast Monitoring
 - 3.10.8.4 Rock Scaling
 - 3.10.8.5 Traffic Control
- 3.10.9 Excavation
 - 3.10.9.1 Excavation Sequence
 - 3.10.9.2 Excavation Equipment, Removal Rate and Timeframe
 - 3.10.9.3 Groundwater, surface water, and leachate management

3.11 OFF-SITE SOIL TRANSPORTATION

- 3.11.1 Preparation of Soil Transport Vehicles
- 3.11.2 Stockpiling and Disposal
- 3.11.3 Off-Site Transportation of Hazardous Soil

3.12 SITE RESTORATION

LIST OF APPENDICES

- A. U.S. Department of Interior Rules 30 CFR §816.61-68 and 817.610-68, and Blasting Guidance Manual, Office of Surface Mining, Reclamation and Enforcement, U.S. Department of Interior.**
- B. Natural Resource Protection Act, 38 MRS § 480-A et. seq, Standard Conditions.**
- C. 38 MRS § 490-D, Performance standards: Performance Standards for Excavations for Borrow, Clay, Topsoil or Silt et seq.**
- D. MDEP 06-096 Chapter 375.10, §10. Control of Noise**
- E. 38 MRS § 490-Z, Performance standards.**
- F. 38 MRS § 585-K, Idling requirements for motor vehicles.**
- tbd Health & Safety Plan (to be provided by Contractor)**

NOTE: Applicable sections of Attachments A, C, D & E are highlighted.

**FOLLOWING TO BE INCLUDED FOR CONTRACTOR Invitation For Bid (IFB)
LIST OF FIGURES**

- 1. Site Location Map**
- 2. Site Layout Map and Area of Excavation**

NOTE: THIS PLAN IS TO BE PART OF PROJECT BID DOCUMENTATION, NOT A PERFORMANCE STANDARD, AND VIEWED FROM OWNER-TO-CONTRACTOR PERSPECTIVE. SOME ADJUSTMENT/REVISION MAY BECOME NECESSARY AS PART OF CONTRACT NEGOTIATIONS, HOWEVER, ALL REGULATORY REQUIREMENTS/STANDARDS WILL BE MET.

1.0 INTRODUCTION

The project is a proposed expansion of the Yankee Commons mobile home park off Idlewood Lane in Kittery, Maine on Map 66 Lots 24 & 25. The adjacent existing park will be expanded by 77 sites/lots for mobile home units and a central community facility (total of 78 new sites/lots). The expansion is planned to be developed over five years.

This work consists of grubbing, blasting, excavation, and disposal of excess materials in the excavation areas in accordance with this plan and in conformity with the limits, lines and grades shown on the plans or as established in the field by the Engineer.

It is estimated that approximately 190,000 cy of earth/rock material will need to be excavated to prepare the site for the mobile homes, of which 130,000 cy is estimated to be rock and 60,000 cy is overburden, which will yield approximately 300,000 cy of material to be hauled away once it is excavated. Trucks removing the material will have a capacity of approximately 18 cy/load which would result in an average of 120 truckloads per day, or 12 truck trips entering and 12 truck trips exiting for 48 trip ends (truck trips count double) an hour between the hours of 7:00am – 5:00pm Monday-Friday. Achieving that as a daily average means the removal would be completed in approximately 138 work days.

Maine Department of Transportation traffic monitoring data shows the peak hour traffic at the Rte 1 – Idlewood intersection is from 4:00-5:00pm and the contractor must not exceed 25 truck round trips (100 trip ends) in any one hour period.

Upon completion of the site preparation described above, the contractor would proceed with site development by installing utilities, roadways, stormwater facilities, lighting and landscaping in accordance with the approved plans.

Restoration and/or stabilization of all ground surfaces will be completed pursuant to the stormwater management plan prepared for the site.

1.1 PROJECT REQUIREMENTS & OBJECTIVES

1.1.1 Pre-Construction Submittals.

At least two weeks prior to start of excavation, the Contractor shall submit for approval by the Owners Representative:

- A. Copies of all Contractor's forms that are to be used to meet the requirements of this specification. At a minimum, these must include blast design and blast report forms.
- B. Manufacturers' data sheets for all explosives, primers and initiators to be used.
- C. The proposed excavation plans and procedures, including:
 1. Equipment and methods for accessing the work area.
 2. Equipment and methods to be used for drilling, loading and firing blastholes.
 3. Equipment and methods to be used for blast monitoring

4. Locations, dimensions and sequence of blasts.
 5. Intended direction of rock movement and delay plan.
 6. Methods of removing shot rock from the cut bench.
 7. Expected excavation rates.
 8. Methods of stabilizing or protecting adjacent structures and vegetation.
 9. Proposed method of controlling flyrock.
 10. Methods for protecting the traffic and roadway from debris produced by the Contractor's excavation and hauling operations.
 11. A description of the pre-blast warning system to be used.
- D. Traffic control procedures and procedures for cleaning of blast debris in accordance with subsection 3.10.8 below and the traffic control specification.
- E. Excavation plans, schedules and procedures.
- F. Rock Scaling procedures.
- G. Proof of current blasting related insurance.
- H. Seismographic equipment specifications.
- I. Documentation confirming that blasting supervisors have a minimum of five years of experience in designing, supervising, loading and firing of blasts for rock slopes or tunnel excavations, as applicable, and have all licenses and permits required by local agencies and others having jurisdiction..

1.1.2 Construction Submittals.

Depending on the composition of the material to be removed in situ, and a desire to use small blasts versus a few large ones, or other appropriate considerations, blasting will occur on as few days of the construction period as possible. Unless otherwise directed, the following must be submitted at least one week prior to the initial blast as noted below:

- A. A blast design for the initial blast at each rock cut must be submitted not later than seven days prior to beginning drilling at that cut location. A blast design must be submitted for each subsequent blast at that rock cut or foundation excavation not later than 24 hours prior to drilling for that blast, if there are substantial differences from the original.
1. Blast plans must include the following:
 - a) Location of blast.
 - b) Drilling pattern, including diameters, spacing, depth, and orientation of drill holes.
 - c) Types, strengths and quantities of explosives proposed for use in each hole, on each delay and for each blast.
 - d) Distribution of the charge in the holes, priming of each hole and stemming of holes.
 - e) Type, sequence and number of delays, delay pattern, diagram for blast, size and type of hookup lines and lead lines and type and capacity of blast initiation device.
 - f) Name and signature of blasting supervisor.
 2. Procedures for the appropriate control and disposal of water during excavation.

3. Daily records of scaling and excavation work must be maintained, and one copy of the record of each day's work must be submitted to the Owner's Representative on the following day. Daily records must include: Locations of scaling work.

B. A blast report for each round of blasting that includes a complete description of each blast conducted. The report must be furnished to the Owner's Representative no later than 24 hours after the round is fired, and include:

1. Date, time and limits of blast by station and offset from centerline of roadway.
2. Diagram of the blast pattern and delay sequence drawn to scale with diameter, spacing, depth and orientation of drill holes. Indicate holes that were not drilled, drilled but not loaded and changes in spacing, pattern, delays or loading of holes.
3. General response to drilling action (noting especially any soft zones or voids encountered) and what if any, adjustments were made in the blast parameters as a result.
4. Quantity of explosives used by weight and number of cartridges per hole and per round and distribution of explosives in holes.
5. Total number of delays used, number of holes for each delay period, maximum charge per delay and type of detonators.
6. Power factor (the weight of explosives per cubic yard of rock in place as determined from the blast pattern).
7. Name and signature of blasting supervisor.
8. An evaluation of the blast indicating areas of significant overbreak and planned adjustments to the blast design for the next blast.
9. Unusual occurrences (including rock falls, unstable ground, groundwater problems, equipment malfunction and the location elevation and time of each occurrence).
10. Seismographic data.

1.1.3 Definitions

Production Blasting. The controlled use of explosives and blasting accessories in carefully spaced and aligned drill holes to provide a distribution of charge that will excavate the rock to the required limits and minimize overbreak, stressing and fracturing of the rock beyond the design lines.

Controlled Blasting. The use of explosives and blasting accessories in carefully spaced and aligned drill holes to produce a free surface or shear plane along the controlled blast line.

Trim (Cushion) Blasting. A controlled blasting method involving the drilling of a single row of holes which are loaded with light, decoupled, well distributed charges and are fired either after the main excavation is removed or in the last delay of a single blast.

Pre-splitting. A controlled blasting method involving a single row of drilled holes which are loaded and fired before any holes in the main excavation are fired.

Line Drilling. A controlled blasting method, which includes a single row of closely spaced, unloaded, small diameter drilled holes providing a plane of weakness in the rock mass to which the primary blast can break.

Controlled Blast Line. The single row of holes used to achieve the results of all controlled blasting methods including trim blasting, line drilling, and pre-splitting.

Trial Blast. A blast or series of blasts to assist in determining the combination of blast parameters that are most appropriate to achieve the desired result as described in this special provision.

Final Wall Face. The remaining slope surface after all excavation is complete.

1.1.4 Special Considerations.

The Contractor shall utilize controlled blasting techniques, where required, to reduce overbreak and to control slope contour to the extent practicable. The Contractor shall conduct the work in a manner that is designed to ensure the safety of employees, authorized visitor personnel, adjacent properties, and the public.

The Contractor shall prevent damage outside the excavation limits, and prevent rocks and blast debris from entering adjacent streams, or properties. All damages resulting from rock excavation operations must be repaired, and items replaced to the satisfaction of the Owner's Representative, at the Contractor's expense.

1.1.5 Site Improvements.

Upon completion of the site preparation described above, the Contractor shall proceed with the installation of utilities, roadways, stormwater appurtenances and other site improvements (including lighting and landscaping) as shown on the plans.

Restoration and/or stabilization of all ground surfaces will be completed pursuant to the stormwater management plan prepared for the site.

1.2 HEALTH AND SAFETY

The health and safety of the community and site workers during construction activities are of primary concern. Health and safety practices to be implemented during construction include preparation of a health and safety plan, excavation plan and traffic control plan. (*Appendix tbd Site-Specific Health and Safety Plan - to be provided by contractor*)

In addition, the Contractor will be required to submit to the Owner's Representative a detailed excavation plan before excavation showing the design of shoring, bracing, sloping, or other provisions, to be made for worker protection from the hazard of caving ground during the excavation of any trench or excavations five feet or more in depth. If the excavation plan varies from shoring system standards, the excavation plan will be required to bear the signature of a civil engineer registered in the State of Maine.

Construction activities will involve using public rights-of-way and therefore, appropriate measures will be implemented to minimize potential traffic concerns. Equipment decontamination, dust suppression, and other precautions will be implemented to minimize potential exposure to waste or impacted soil.

Although dust plumes are mitigated with snow on the ground, dust suppression for all exposed materials during site construction will be performed. This includes monitoring for and controlling dust on haul roads, areas where materials will be consolidated, areas where material will be excavated, and staging areas. Measures to minimize fugitive dust from exposed or un-vegetated cover soils will also be implemented.

1.3 MITIGATION MEASURES

The mitigation measures incorporated into the project are summarized below.

1.3.1 Health & Safety Plan

The Contractor will maintain proper emissions systems on construction vehicles and comply with emissions standards for vehicles. The Contractor will implement fugitive dust control measures.

Adequate provision will be made, as approved by the Maine Department of Environmental Protection (MDEP), for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character, air quality, water quality or other natural resources in the municipality or in neighboring municipalities. The rock crusher used at the site must be licensed by the MDEP's Bureau of Air Quality and operated in accordance with that license.

Local air quality standards require "All air pollution control shall comply with the minimum state requirements, and detailed plans shall be submitted to the state of Maine Department of Environmental Protection for approval, before a building/regulated activity permit is granted. In any case, no objectionable odor, dust or smoke shall be detectable beyond the property line."

All removal hauling vehicles will comply with the State's anti-idling statute in 38 MRS § 585-L, and MDEP 06 096 Chapters 110, Ambient Air Quality Standards, and 146, Diesel-Powered Motor Vehicle Emissions Standards.

1.3.2 Air Quality Monitoring

Air quality concerns fall into two general categories: Fugitive dust emissions; and, motorized equipment emissions.

Dust Emissions -

Fugitive dust emissions will be evaluated visually and appropriate BMP's will be employed (i.e., application of water, calcium chloride, etc.) by the Contractor, as needed.

Motorized equipment emissions -

All equipment will be operated by the Contractor in conformance with 38 MRS § 585-K. Idling requirements for motor vehicles (Attachment F.)

The Contractor shall maintain a daily equipment log listing all equipment used (type, model year, etc.). This log can be checked against the equipment list used in the air quality analysis report to verify that predicted emission levels are not being exceeded.

(NOTE: As long as model years of equipment being used are newer than those used in the air quality analysis, emissions can be considered in compliance.)

1.3.3 Biological Resources Monitoring

The Contractor will implement the avoidance and protection measures specified by Maine Department Environmental Protection to protect the wetlands & nearby vernal pool that are to be proposed for a conservation easement cession to the Town.

1.3.4 Cultural Resources Monitoring

If any archaeological, cultural, historical resources, artifacts or other features are discovered during the course of construction anywhere on the site, work will be suspended in that location until a qualified professional archaeologist assesses the significance of the discovery.

1.3.5 Hazardous Materials Management

The Contractor will be required to store and use hazardous materials in a manner that is protective of the public, on-site workers, and the environment. The Contractor will present to the Owner's Representative its proposed storing, handling and spill contingency methods in its Health and Safety Plan and its Construction Storm Water Pollution Prevention Plan. These plans will require that on-site staff is appropriately trained in identifying, monitoring for, and responding to releases of hazardous materials.

1.3.6 Noise Control

Statutory obligations for excavation blasting, noise, and hauling, must be conducted by the Contractor in accordance with 38 MRS § 480-D et seq; § 490-Z, §14; 25 MRS Chapter 318, § 2475; and noise from construction activities will not exceed the limits described in MDEP 06-096 Chapter 375(10)(C)(2).” See Appendices A-D, incorporated herein by reference.

Prior to conducting blasting at the site, a site-specific blasting plan shall be submitted by the Contractor to the MDEP Bureau of Land and Water Quality (BLWQ) for review and approval (with a copy of the plan provided to the town).

If a rock crusher is to be utilized on site, the Contractor shall insure that the crusher is licensed by MDEP's Bureau of Air Quality and is being operated in accordance with that license (with a copy of the license provided to the town).

1.3.7 Underground Utilities

There are no known underground utilities on the site, however, prior to the removal activities, the Contractor will be responsible for identifying and confirming the location of any buried utilities.

1.3.8 Soil Erosion and Sediment Control

In addition to any specific erosion control measures described in this plan, the Contractor shall take all necessary actions to ensure that its activities or those of its agents do not result in noticeable erosion of soils or fugitive dust emissions on the site during the construction and operation of the project covered by this approval, as follows:

- Following the completion ground levels and grades must be established in accordance with approved plans.
- Debris, stumps, boulders and similar materials must be removed and disposed of in an approved location or, in the case of inorganic material, buried and covered with a minimum of two feet of soil.
- Sufficient topsoil or loam must be retained to cover all disturbed areas.
- Revegetated and properly must be restored to a stable condition adequate to meet the provisions of the “Maine Erosion & Sediment Control BMPs,” March 2003.

Prior to construction, the Contractor will be responsible for installing erosion and sedimentation control devices to minimize the potential for discharges of waste and impacted storm water during construction. These controls will be described in detail in the Construction SWPPP and include:

- Installation of silt fencing and sedimentation barriers;
- Slope minimization;
- Stabilization of temporary waste stockpiles;
- Use of plastic tarps, mulching, or hydro-seeding on areas that are not being actively graded or completed and will be exposed for extended periods (i.e., longer than 45 days);
- Construction and stabilization of storm water ditches and down chutes; and
- Planting of permanent native vegetative cover when construction is complete.

Additional prevention measures must include performing heavy equipment fueling and storing hazardous materials in designated areas and parking vehicles and locating stockpiles away from storm water drainage points.

1.3.9 Storm Water Management

The site construction will be subject to the requirements of the MDEP-approved stormwater management plan.

Temporary storm water pollution prevention controls must remain in place until restoration is complete and final vegetation is fully established. If excavation activities span more than one construction season, erosion and sedimentation controls in the wet season between periods of construction will need to accommodate greater volumes of storm water.

As required in Maine DEP Site Location of Development Approval Findings of Fact, 2013-06-10, Site Location of Development Act and NRPA Order - L-19638-L2-B-N-L-19638-A-C-N:

“SUBJECT TO THE FOLLOWING CONDITIONS and all applicable standards and regulations: 7. The applicant shall retain the services of a third-party inspector in accordance with the Special Condition for Third-Party Inspection Program, which is attached to this Order.”

Prior to the start of construction, the Owner’s Representative shall conduct a pre-construction meeting. This meeting shall be attended by the Owner’s Representative, Department staff, the design engineer, the contractor, and the third-party inspector.

The Owner’s Representative shall retain the services of the design engineer to oversee the construction of the stormwater management structures in accordance with the details and notes specified on the approved plans. Within 30 days of the completion of each structure, the Owner’s Representative shall submit a log of inspection reports including the items inspected, photos taken, and dates of each inspection to the BLWQ for review.

Storm sewer grit and sediment materials removed from stormwater control structures during maintenance activities shall be disposed of in compliance with the Maine Solid Waste Management Rules.”

A. The proposed activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic habitat, travel corridor, freshwater, estuarine, or marine fisheries or other aquatic life.

B. The proposed activity will not violate any state water quality law including those governing the classifications of the State's waters.

C. The proposed development will be built on soil types which are suitable to the nature of the undertaking and will not cause unreasonable erosion of soil or sediment nor inhibit the natural transfer of soil provided that the applicant submits an acceptable blasting plan to the BLWQ for review and approval prior to conducting blasting at the site.

D. The proposed development meets the standards for storm water management in Section 420-D and the standard for erosion and sedimentation control in Section 420-C, provided the Owner's Representative retains the services of the design engineer to oversee construction of the stormwater management structures, grit and sediment removed from stormwater structures during maintenance activities is disposed of properly, a third-party inspector is retained, and a pre-construction meeting is conducted, all as outlined in SLoD Permit Finding 10.

E. The proposed development will not pose an unreasonable risk that a discharge to a significant groundwater aquifer will occur.”

1.3.10 Traffic Control and Temporary Parking

Minimum requirements for traffic control will be identified in the design specifications and include: haul routes, anticipated times and frequency of hauling, equipment decontamination, truck tarping procedures, and roadway cleaning practices. To avoid disturbing residents of the area development, the Contractor must access the excavation site via the new Idlewood Lane entrance and avoid the Yankee Commons and Wilson Road entrances.

Additionally:

- Loaded vehicles must be suitably covered.
- Trucking routes and methods are subject to approval by the Chief of Police.
- Access roads from extraction site to public ways must be treated with stone, calcium or other suitable materials to reduce dust and mud for a distance of at least one hundred (100) feet from such public ways.
- All loaded trucks to proceed from site east on Idlewood Lane to Route 1
- No other use of local (town-owned) roads permitted. All access to be via I-95 or State highways
- Northbound
 - All northbound trucks to proceed south on Route 1 to I-95 service center entrance, proceed through center and proceed on I-95 North.
- Southbound
 - All southbound trucks to proceed south on Route 1 and onto I-95 or Route 236 as soon as possible.
 - Use I-95 to maximum extent practicable.
- Unloaded and Returning to Site
 - Use I-95 to maximum extent practicable .
 - Use service center connection to Route 1 south of site
 - Proceed north on Route 1 to Idlewood Lane
 - Enter site off Idlewood Lane

2.0 COMMUNITY RELATIONS

The community surrounding the Site includes all Yankee Commons Park residents; occupants of other residences on Idlewood Lane; and employees at Landmark Hill. Outreach to the community during the project will include neighborhood meetings, public notices, a project website, property inspections, and signs.

3.0 SCOPE OF WORK

3.1 OVERVIEW

3.1.1 Construction Deliverables

Deliverables for the project consist of Owner deliverables and Contractor deliverables as summarized below. A copy of each deliverable will be provided to the regulatory agencies upon request.

3.1.2 Owner Deliverables

Deliverables to be prepared by the Owner's project Engineer include design drawings and the site specific Stormwater Management Plan.

- Design Drawings: the Planning Board Approved Plan Set for the project.
- Design Specifications:
The following items may be found on the Design Drawings or elsewhere within this plan.
 - General Requirements (dust control, air emissions and noise control, stormwater pollution prevention, security, traffic control, excavation plan)
 - Site Work (protection of existing features, demolition, excavation, transportation and disposal, revegetation, erosion control,)
- Cost Estimate
- Stormwater Management Plan

3.1.3 Contractor Deliverables

Deliverables to be prepared by the Contractor include the following items.

- Health and Safety Plan (including Utility Shut-off and Contingency Plan)
- Construction Schedule
- Construction Sequencing Plan
- Environmental Management Plan (dust control, protection of trees, etc.)
- Traffic Control Plan
- Excavation Plan
- Winterization Plan
- Final Record Drawing survey package
- Material submittals (hydroseed mix, geotextile, gravel, soil binders, dust suppressing chemicals, fencing, concrete, etc.)
- Work Area Security Protocol
- Warranties and bonds

3.2 SITE SECURITY

3.2.1 Site Control

The Owner's Clerk of the Works will maintain a list of on-site workers and vehicle types, with license numbers. The Contractor will coordinate with subcontractors prior to any deliveries by vendors or mobilization to the site.

3.2.2 General Procedures

Site workers, vendors, and subcontractors are required to observe security and safety measures imposed by the Owner. These include, among others, prohibition of weapons, drugs, and alcoholic beverages. In addition, cell phone usage by the driver is prohibited when a vehicle is in motion.

3.3 PLANS, PERMITS, & PREMOBILIZATION ACTIVITIES

The following sections describe the plans, permits, and pre-mobilization activities for the removal action.

3.3.1 Construction Schedules

A construction schedule will be prepared by the Contractor for approved by the Owner's Representative prior to implementing the field activities.

3.3.2 Permits

Prior to initiating the removal action, the proper permits will need to be obtained by the Contractor.

Copies of the permits will be available on-site during the construction activities.

3.3.3 Pre-Mobilization Activities

Prior to commencing the field activities, waste profiling and underground utility clearance will be completed by the Contractor.

3.3.4 Waste Profiling

To minimize the amount of stockpiled material, approval will be obtained by the Contractor from any stockpiling facility to accept the excavated soil prior to initiating the removal action.

3.9 MOBILIZATION & SITE PREPARATION

The following section describes the mobilization and site preparation activities.

3.9.1 Mobilization

The Contractor will provide all personnel, equipment, and materials to perform the removal action described in this document. All equipment brought onto the site will be clean and in good working condition.

3.9.2 Site Preparation

The Contractor will establish temporary fencing bordering the site perimeter on the side adjacent to the existing Park, since residences will be occupied during the removal action.

The Owner's surveyor will install horizontal and vertical control points, install any required perimeter boundary markers and place NO CUT/NO DISTURB markers along designated areas.

3.9.3 Soil Stockpile Site Preparation

The Contractor will designate an area to temporarily store excavated soil prior to transport and that to be reused on site. The Contractor shall size the area based on the requirements to complete the removal action effectively and efficiently.

3.10 EXCAVATION OF EARTH/ROCK

The following routine industry best management practices (BMP's) for excavation operations as prudent for protection of public health and safety are mandatory:

- Topsoil and subsoil suitable for purposes of revegetation will be stockpiled for use in restoring the location after extraction operations have ceased.
- Loaded vehicles must be suitably covered.
- Trucking routes and methods are subject to approval by the Chief of Police.
- Access roads from extraction site to public ways to be treated with stone, calcium or other suitable materials for a distance of at least one hundred (100) feet from public ways to reduce dust and mud on such public ways.
- No equipment, debris, junk or other material at site except those directly relating to active extraction operations.
- Temporary shelters or buildings erected for operations and equipment used must be removed within thirty (30) days following completion of excavation operations.
- Following the completion of excavation operations ground levels and grades must be established in accordance with approved plans.
- Debris, stumps, boulders and similar materials to be removed and disposed of in an approved location or, in the case of inorganic material, buried and covered with a minimum of two feet of soil.
- Site to be revegetated and properly restored to a stable condition adequate to meet the provisions of the "Maine Erosion & Sediment Control BMPs," March 2003.

3.10.1 Demolition

Best estimate is that approximately 130,000 cy of the in-place material being removed will be rock (total of 190,000 cy of material being removed less 60,000 cy of overburden). Assuming 2 drills and a 10' average cut, the volume of material removed could be around 1,800 to 2,000 cy per day. For 130,000 cy that would mean about 68 days or 14 weeks for the total blasting period. These figures may change based on site-specific conditions.

Blast shots are typically scheduled at the end of the day, but timing is adjustable should conditions warrant.

All demolition work must be performed by the Contractor.

Prior to conducting blasting at the site, a site-specific blasting plan shall be submitted by the Contractor to the BLWQ for review and approval (with a copy of the plan being provided to the town).

If a rock crusher is being utilized on site, the Owner's Representative shall insure that the crusher is licensed by MDEP's Bureau of Air Quality and is being operated in accordance with that license (with a copy of the license provided to the town).

Federal and State regulatory requirements will be levied in the contract requirements for construction contractor compliance. See Appendices A-F, incorporated herein by reference):

- A. U.S. Department of Interior Rules 30 CFR sections 816.61-68 and 817.610-68, and Blasting Guidance Manual, Office of Surface Mining, Reclamation and Enforcement, U.S. Department of Interior.
- B. Natural Resource Protection Act, 38 MRS § 480-A et. seq., Standard Conditions.
- C. 38 MRS § 490-D, Performance standards: Performance Standards for Excavations for Borrow, Clay, Topsoil or Silt et seq.
- D. MDEP 06-096 Chapter 375.10, §10. Control of Noise. Performance standards.
- E. 38 MRS § 490-Z, Performance standards.
- F. 38 MRS § 585-K, Idling requirements for motor vehicles.

Prior to beginning excavation, grading, or embankment operations in any area, the following items are required to be completed by the Contractor:

Additional subsurface investigation will be done to determine the amount of existing onsite overburden and the amount to be retained for project completion.

- a. Clearing and grubbing is conducted. This includes the removal of all inorganic material such as tree roots, stumps, sod, weeds, agricultural debris, etc.
- b. Check sections are taken and checked satisfactorily with those on the plans. The Contractor is responsible for securing check sections. The method of checking original cross sections will be reviewed by the Engineer.

3.10.2 ROCK EXCAVATION

A. Rock excavation includes removal and disposal of the following: (1) all boulders measuring 1/3 of a cubic yard or more in volume; (2) all rock material in ledges, bedding deposits, and un-stratified masses which cannot be removed without systematic drilling and blasting; (3) concrete or masonry structures which have been abandoned; and (4) conglomerate deposits which are so firmly cemented that they possess the characteristics of solid rock and which cannot be removed without systematic drilling and blasting.

B. It is expected that nearly all excavation can be accomplished using conventional equipment as listed in the Table in Section 3.10.9.2 below.

C. If material is encountered which the Contractor believes cannot be excavated by conventional equipment, the Engineer must be immediately notified. The Contractor shall provide performance tests of the specified conventional or equivalent equipment. If the Engineer confirms in writing that the specified conventional equipment cannot perform at the production rates specified, the excavation must be considered rock excavation.

3.10.3 Site Preparation

Prior to commencing excavation, the Contractor will prepare the Site by:

- Protecting nearby existing structures;
- Providing Site security;
- Establishing temporary construction facilities and staging areas; and
- Demarcating excavation limits.

3.10.4 Protection of Nearby Existing Structures

The Contractor will be responsible for coordinating with utility owners prior to construction such that the activities discussed below are planned for in the construction schedule and do not delay the completion of the overall project. These activities include demarcation and protection of existing Site structures prior to construction.

- **Utilities:** The Contractor will be responsible for protecting all utilities and will not assume that utilities are absent if not shown on the design drawings. The Contractor will arrange for the location and marking of underground utility lines which include, but may not be limited to: water, sanitary sewer, storm sewer, electrical, natural gas, telephone, and cable. The Contractor will request and review available as-built drawings from the Department of Public Works and applicable utility agencies and companies.

Prior to construction, the Contractor will submit a Utility Shut-off and Contingency Plan. This plan must outline procedures and response actions for shutting down utilities and controlling releases accidentally caused by construction activities and identify the necessary emergency notifications.

- **Un-Impacted Areas:** The Contractor's surveyor will demarcate the horizontal extent of excavation based on the design drawings. If necessary, the Contractor will install barriers to prevent uncontrolled entry of equipment into areas outside the excavation limit (i.e., un-impacted areas). The Contractor will also provide sufficient dust control and equipment decontamination to prevent contaminating un-impacted areas. If the construction manager observes a condition that may result in contamination of an un-impacted area, the condition will be documented.

3.10.5 Site Security

The Contractor will be responsible for Site security during construction and will restrict access to the Site to authorized personnel. The Contractor will erect temporary construction fencing as necessary to secure the construction area and prevent unauthorized access. Temporary fencing will be secured across ingress and egress points when construction is not actively being performed. Signs will be posted at 50-foot intervals to prohibit trespassers.

3.10.6 Temporary Construction Facilities and Staging Areas

Temporary construction facilities and staging areas will most likely consist of a Contractor equipment and material lay down area, a construction trailer that contains a temporary project office, utilities that support the office and construction (e.g., water tanks, generators, worker sanitation facilities), stockpiles of excavated removal material destined for off-site disposal, and stockpiles of clean soil destined for backfill after excavation.

The Contractor will propose the final location and layout of temporary construction facilities and staging areas to the Owner's Representative prior to mobilization. The Contractor will establish haul roads or crossings as necessary according to the design drawings and specifications.

3.10.7 Demarcation of Excavation Area

The Contractor's surveyor will be responsible for performing the necessary construction surveying tasks outlined in the design drawings. These activities include, but may not be limited to, locating control points, and demarcating the limits of excavation areas.

3.10.8 Excavation General.

Excavation must not extend beyond the dimensions and elevations established except as specified on the plans or as directed by the Owner's Representative.

For sliver cuts, pioneering the top of cuts and preparing a working platform to begin operations may require unusual working methods and equipment. The Contractor may use angle drilled holes or fan drilled holes during the initial pioneering operation to obtain the required rock face.

Excavation, rock reinforcement, stabilization, or both, carried out below or beyond the lines and grades shown on the plans, below or beyond that established by the Engineer, or for the convenience of the Contractor, are at the Contractor's expense.

The Contractor shall provide surveyed points on [100,50] foot stations, indicating grade and centerline offset on the backslope after each lift has been excavated and before drilling begins for the next lift.

The rock on this project is not homogeneous. The Contractor shall perform trial blasts and or adjust the blast parameters as required by the existing rock conditions, in order to comply with all other specifications.

Blasts must be conducted in conformance with the following limitations as required by the Engineer. These limitations remain in effect unless it is demonstrated through trial blasts that the desired results can be achieved when said limitations are exceeded.

3.10.8.1 Drilling General

The inclination of vertical holes may not exceed 1(VERTICAL): 4(HORIZONTAL).

Bench height must be a maximum of 20 feet.

Blasts must be sized such that requirements of the traffic control specifications are fulfilled.

Maximum depth of sub-drilling for all blast holes at final grade must be 24 inches.

Drillhole conditions may vary from dry to filled with water. The Contractor shall use explosives or blasting accessories that are appropriate for the hole conditions at no additional cost to the project.

The blast design must take into consideration the natural joints, seams, fractures and bedding of the slope.

Where possible, hole alignment and stemming techniques must be used to maximize the contribution of the natural slope characteristics to the final face. The Engineer shall approve locations where the use of natural slope characteristics will be used to shape the final wall face.

3.10.8.2 Production Blasting

All blasting shall be conducted in accordance with a State approved blasting plan.

3.10.8.3 Blast Monitoring

Blast induced vibrations must be monitored by the Contractor for every blast. Data will be made available to the Owner's Representative no later than the next working day following each blast. The Contractor's seismograph equipment must, as a minimum:

- (1) Be equipped with a self-triggering device.
- (2) Be capable of measuring vibrations in three planes.

- (3) Automatically calculate peak resultant particle velocity.
- (4) Be capable of providing a hard copy of the wave form and summary results.

3.10.8.4 Rock Scaling

Immediately after each blast, the Contractor shall scale loose rock and blast debris and inspect rock surfaces.

All rock on the cut face that is loose, hanging, or that creates a potentially dangerous situation must be removed or stabilized, to the Engineer's satisfaction, during or upon completion of the excavation in each lift. Drilling of the next lift may not proceed until this work has been completed.

The slopes must be scaled throughout the duration of the Contract and at such frequency as required to remove all hazardous loose rock or overhangs.

The slopes must be scaled using a suitable standard steel mine-scaling rod. Subject to the Owner's Representative's approval, other methods such as machine scaling, hydraulic splitting, or incidental, low-quantity blasting may be used in lieu of or to supplement hand scaling.

3.10.8.5 Traffic Control

Traffic control for blasting work must be in accordance with the Traffic Control Plan.

The time of blast initiation for each blast must be furnished to the Owner's Representative by the Contractor's Traffic Control Supervisor. This notification must occur at least 12 hours prior to the blast and be confirmed 30 minutes prior to the blast by phone or traffic control radio network.

3.10.9 Excavation

This section describes the anticipated approach for excavation at the Site including the sequence, removal rate, and timeframe. The Contractor may modify the approach as appropriate given that the contents of the Site are not completely known. In addition:

- No standing water may be permitted in any extraction site during or after extraction operations.
- Except during or after extraction operations standing water permitted under strict conditions with respect to fencing, safe levels of coliform bacteria count, and treatment to prevent breeding of insects.
- No slopes steeper than three feet horizontal to one foot vertical unless a fence at least three feet high is erected to limit access to such locations.
- Any topsoil and subsoil suitable for purposes of revegetation stockpiled for use in restoring the location after extraction operations have ceased.
- No equipment, debris, junk or other material at site except those directly relating to active extraction operations.
- Temporary shelters or buildings erected for operations and equipment used removed within thirty (30) days following completion.

3.10.9.1 Excavation Sequence

The general anticipated sequence of excavation is to commence at the section abutting Idlewood Lane and then the rear section.

The routine work protocol will be preparation, blasting, crushing, sorting, loading and hauling. The number of removal hauling trips will vary day-to-day, but in no case will exceed 120 loaded trucks/day.

3.10.9.2 Excavation equipment, removal rate and timeframe

The excavation removal rate depends upon the final quantity and type of excavation equipment ultimately selected by the Contractor.

Dump trucks hauling away from the site will be 2005 models, or newer. The total excavation timeframe is estimated at 28-30 work weeks. Hauling will be from Monday-Friday, beginning no earlier than 7:00am and suspended no later than 5:00pm daily. Hauling will be suspended from June 30th through Labor Day, as may be necessary.

Accounting for mobilization/de-mobilization and other construction activities, the construction phase of the project is anticipated to last approximately 7-8 months.

The Contractor will use a variety of equipment to perform the excavation and other related activities. Representative diesel fueled equipment are shown below:

Equipment for Construction

Equipment: # / Yr / Model	GVW (lbs)	HP	Engine
1 – 2014 Atlas Copco Flexiroc T35	34,170	225	Cat® C7.1, Tier 4/stage IIIB
1 – 2012 Atlas Copco Flexiroc T40	34,170	225	Cat® C7.1, Tier 4/stage IIIB
1 – 2006 Hitachi ZX 800 Excavator	166,900	454	Isuzu BB-6WG1T
1 – 2006 Hitachi ZX 450 Excavator	103,838	349	Isuzu AH-6WG1XYSA-01
1 – 2008 Cat 330 DL Excavator with 8,000# hammer	79,700	268	Cat® C9 ACERT
1 – 2015 Komatsu PC360 Excavator	79,930	257	Komatsu SAA6D114E-5
1 – 2008 John Deere 750J Dozer	37,725	168	JD 6068H
1 – 2008 Cat 966H Loader	52,254	286	Cat® C11 ACERT
1 – 2012 Cat 930K Loader	30,479	162	Cat® C6.6 ACERT
1 – 2006 Cat 740 Haul Truck	72,400	454	Cat® C15 ACERT
1 – 1989 Cat D25C Off Road Water Truck	43,431	260	Cat 3306
TBD - Avg: Kenworth T880	80,000	500	PACCAR MX-13
1 – 1999 Nordberg Lokotrack LT105 Jaw Crusher*	82,200	300	Cat® C9 ACERT
Rock crushing capacity	400 mtph (440 stph)		
Diesel burning average	1.3 gallons/hour		

* MDEP Bureau of Air Quality license required

3.10.9.3 Groundwater, surface water, and leachate management

Groundwater is not anticipated to be encountered during excavation. However, some water may be trapped in some areas, including after periods of heavy rain. The need to remove trapped water is not expected. Should water need to be removed from trenches during utility construction, appropriate erosion and sediment control measures will be employed.

3.11 OFF-SITE SOIL TRANSPORTATION

3.11.1 Preparation of Soil Transport Vehicles

All off-site transport vehicles will be equipped with a weatherproof tarp that will be secured over each shipment leaving the site or upon placement of removal material within the container. Following tarping, each transport vehicle will be visually inspected.

3.11.2 Stockpiling and Disposal

As material is excavated, the Contractor will stage it in a pre-determined area for stockpiling, and characterization. Excavated material may be backfilled on-site as clean soil or base rock or loaded for transport off-site. The Contractor will inspect the material as it is excavated and delivered to the staging area and segregate it based on observations of its content.

3.12 SITE RESTORATION

Upon completion of the excavation activities, areas that will not be modified as part of the new facility installation will be graded and restored to their pre-project existing conditions, unless modification of condition is appropriate based on the planned redevelopment of the site. Any remaining materials will be properly removed from the site and all equipment will be -demobilized.



PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA, ME 04333-0041
TEL: 207-287-8000

CHANDLER E. WOODCOCK
COMMISSIONER

Dear Mr. Beers,

As you know, I've been reviewing the proposed expansion of the Yankee Commons subdivision in Kittery, Maine. The site falls within one of our Environmental Review polygons for New England cottontails (a state endangered species), thus necessitating my review. On September 10, 2015 I did my initial site visit, and determined that the site contained potentially suitable habitat for cottontails. However, I did not locate any cottontail sign during this visit. Subsequently, in October 2015 I used game cameras baited with apples in an attempt to obtain pictures. I obtained many pictures of wildlife including: American woodcock, deer, gray fox, raccoon, porcupine, and a weasel among other species. However, no pictures of cottontails were obtained; nor were any signs of cottontails observed during visits to check cameras.

Snow tracking surveys are our preferred method of surveying for New England cottontails because there is a high probability of detection in a single visit due to the detectability of tracks and increased visibility of pellets. Therefore, on January 15, 2016, I conducted a snow tracking survey at the site. Snow conditions were adequate for finding tracks and pellets, as evidenced by the presence of many deer tracks and pellets as well as fox tracks at the Yankee Commons site. However, no evidence of cottontails was observed.

The lack of evidence through these multiple survey efforts at the proposed expansion site suggests that it is unlikely that New England cottontails currently occupy the area. Therefore, we *will not require mitigation* for the development.

If the landowner is interested in the New England cottontail conservation effort, they could help enhance the effort by *voluntarily* managing a portion of the undeveloped land to provide suitable habitat for cottontails and other species that use the shrubland and young forest habitat. Although the property is not currently occupied by cottontails, managing for shrubland or young forest habitat would provide an area that could be colonized in the future. If desired, MEDIFW can provide technical assistance for habitat management.

Please contact me if you have any questions, or would like additional assistance.

Sincerely,

Cory R. Stearns
Wildlife Biologist
ME Dept. Inland Fisheries and Wildlife
358 Shaker Rd.
Gray, ME 04039
(207) 657-2345 Ext. 108
cory.r.stearns@maine.gov

FISH AND WILDLIFE ON THE WEB!
www.maine.gov/ifw

E-MAIL ADDRESS:
ifw.webmaster@maine.gov

AIR QUALITY ANALYSIS OF CONSTRUCTION ACTIVITIES

Yankee Commons Expansion Project

Prepared for:

Stephen A. Hynes Real Property Trust Agreement
3 Idlewood Lane
Kittery, Maine 03904

Prepared by:

Amec Foster Wheeler Environment & Infrastructure, Inc.
511 Congress Street
Portland, Maine 04101

December 2015



TABLE OF CONTENTS	PAGE
1.0 INTRODUCTION	1-1
2.0 EMISSIONS INVENTORY	2-1
2.1 Project Related Emissions Sources	2-1
2.2 Mobile Source Exhaust Emission Estimates	2-1
2.2.1 On-Road Haul Trucks	2-1
2.2.2 Non-Road Mobile Equipment	2-2
2.3 Fugitive Dust Emissions	2-4
2.3.1 Crushing Operations	2-4
2.3.2 Haul Truck Loading Operations	2-4
2.3.3 Haul Truck Travel on Paved Roads	2-4
2.3.4 Haul Truck Travel on Unpaved Roads	2-4
2.3.5 Front End Loader Travel on Unpaved Site Surfaces	2-5
2.3.6 Bulldozer Operations	2-5
3.0 AMBIENT AIR QUALITY IMPACT ANALYSIS	3-6
3.1 Background Air Quality	3-6
3.2 Receptors	3-7
3.3 Urban Land Use Assessment	3-8
3.4 Meteorology	3-8
3.5 Emission Sources	3-10
3.5.1 Volume Sources	3-10
3.5.2 Point Sources	3-11
3.5.3 Line Sources	3-11
3.6 Model Results	3-12
3.7 Volatile Organic Compounds	3-13
4.0 CONCLUSION	4-1
5.0 REFERENCES	5-1

Appendix A Emissions Calculations

1.0 INTRODUCTION

Stephen A. Hynes Real Property Trust Agreement (Hynes) is seeking approval from the Town of Kittery Planning Board for the proposed expansion of Yankee Commons. The Planning Board has requested an analysis of air quality impacts associated with the construction activities.

Hynes contracted Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) to perform the requested analysis. The air quality analysis involves two primary tasks: (a) development of an emissions inventory, and (b) performance of dispersion modeling to assess potential impacts to air quality.

Section 2 describes the equipment anticipated to be used during the construction activity, and inventories the emissions associated with that equipment. Section 3 describes the protocol followed in performing the ambient air quality impact analysis and presents the results. Section 4 provides the conclusion of the analysis.

2.0 EMISSIONS INVENTORY

The purpose of the emissions inventory is to calculate emission rates for input to a dispersion model (Section 3) to estimate the potential air quality impacts associated with the project. The following sections identify the emission sources associated with the Project, and the corresponding emission estimates for those sources.

2.1 Project Related Emissions Sources

The Project consists of construction activities related to the expansion of an existing mobile home park. Hynes identified construction equipment and trucks needed for the Project. A representative listing of equipment make, model, model year, and rating is provided in Table 2-1.

Table 2-1. Equipment Anticipated for Construction Activity

Equipment	Quantity	Model Year	Rating (hp)
Atlas Copco Flexiroc T35	1	2014	225
Atlas Copco Flexiroc T40	1	2012	225
Hitachi ZX 800 Excavator	1	2006	454
Hitachi ZX 450 Excavator	1	2006	349
Cat 330 DL Excavator with 8,000# hammer	1	2008	268
Komatsu PC360 Excavator	1	2015	257
John Deere 750J Dozer	1	2008	168
Cat 966H Loader	1	2008	286
Cat 930K Loader	1	2012	162
Cat 740 Haul Truck	1	2006	454
Cat D25C Off Road Water Truck	1	1989	260
Nordberg Lokotrack LT105 Jaw Crusher	1	1999	300

2.2 Mobile Source Exhaust Emission Estimates

The equipment used for the Project can be classified into two types of mobile emission sources: on-road trucks and non-road mobile sources. The haul trucks being used to haul material from the site are on-road trucks. The other pieces of construction equipment used are considered non-road mobile sources.

2.2.1 On-Road Haul Trucks

Exhaust emission factors for the haul trucks are calculated using USEPA's MOVES2014a model (USEPA, 2014). Table 2-2 presents the required input parameters for the specified haul truck type and the resulting emission factors for NO_x (nitrogen oxides), CO (carbon monoxide), PM₁₀ (particulate matter less than 10 micrometers in size - 100 times thinner than a human hair), PM_{2.5} (particulate matter less than 2.5 micrometers in size), SO₂ (sulfur dioxide) and VOC

(volatile organic compounds). MOVES2014a calculates emission factors in units of grams per vehicle mile traveled (g/VMT) for specific vehicle speeds. The speed limit along most portions of US Route 1 near the site is 45 miles per hour (mph) and the emission factors associated with this vehicle speed are conservatively used for travel offsite. Onsite travel is assumed to be 10 mph.

Table 2-2. MOVES2014a Calculated Exhaust Emission Factors for On-Road Trucks

Truck	Class	Speed (mph)	Exhaust Emission Factor (g/VMT)					
			CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC
2006 Cat 740	Combination	45	5.957	16.225	1.055	0.971	0.031	1.474
Haul Truck	Short Haul Truck	10	14.049	33.330	2.211	2.034	0.055	5.745

Hynes estimates 60 haul round trips per day with 1,800 to 2,000 cubic yards of material being removed each day. Based on the number of trips and the length of the roads traveled, the total vehicle miles traveled (VMT) per hour for the project area is calculated. Exhaust emissions for each vehicle type are calculated by multiplying the anticipated VMT by the appropriate emission factor provided previously in Table 2-2. Table 2-3 presents the anticipated VMT for each speed and the corresponding on-road vehicle emissions for the project.

Table 2-3. Calculated Exhaust Emissions, On-Road Trucks

Truck	Speed (mph)	VMT/hr	Exhaust Emissions (g/s)					
			CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC
2006 Cat 740	45	2.801	0.0046	0.0126	0.0008	0.0008	0.00003	0.0011
Haul Truck	10	4.737	0.0185	0.0439	0.0029	0.0027	0.00007	0.0076

For the road lengths, the roads on the construction site and those proximate to the construction site (e.g., Idlewood Lane and the first 0.23 miles of US Route 1 heading northbound – see Figure 3-1) were considered. The dispersion modeling performed for this analysis and described in Section 3 demonstrates that emissions from haul trucks moving along US Route 1 will have a minor contribution to air quality impacts near the project site, and therefore the analysis was limited to the portion of US Route 1 located closest to the project site.

2.2.2 Non-Road Mobile Equipment

The construction equipment used onsite for the Project is classified as non-road mobile equipment fueled solely by diesel fuel. Exhaust emission factors for the construction equipment are calculated using USEPA's MOVES2014a model (USEPA, 2014a). Table 2-4 presents the emission factors identified for each non-road vehicle type. The emission factors are supplied in units of grams per horsepower-hour (g/hp·hr) for specific vehicle types and manufacturing year.

Load factors provided by MOVES2014a are applied to the emission factor to account for vehicle operational loads. Total emissions for each vehicle type are calculated by multiplying the equipment horsepower by the load factor and by the emission factors previously provided in Table 2-4. Table 2-5 presents the anticipated vehicle loading factor and the total calculated emissions.

Table 2-4. MOVES2014a Calculated Exhaust Emission Factors for Non-Road Equipment

Construction Equipment	Model Year	Rating (hp)	Exhaust Emission Factor (g/hp-hr)					
			CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC
Atlas Copco Flexiroc T35	2014	225	0.0714	0.2803	0.0084	0.0081	0.0026	0.1537
Atlas Copco Flexiroc T40	2012	225	0.0723	1.3924	0.0087	0.0085	0.0026	0.154
Hitachi ZX 800 Excavator	2006	454	1.5565	2.9515	0.2724	0.2642	0.0036	0.2023
Hitachi ZX 450 Excavator	2006	349	1.5565	2.9515	0.2724	0.2642	0.0036	0.2023
Cat 330 DL Excavator	2008	268	1.3064	2.9085	0.2812	0.2728	0.0036	0.2359
Komatsu PC360 Excavator	2015	257	0.1146	0.2806	0.009	0.0087	0.0026	0.1543
John Deere 750J Dozer	2008	168	1.5242	2.9167	0.4182	0.4057	0.0040	0.2394
Cat 966H Loader	2008	286	1.2841	2.9042	0.2667	0.2587	0.0036	0.2351
Cat 930K Loader	2012	162	0.1394	1.3953	0.0099	0.0096	0.0029	0.1551
Cat D25C Water Truck	1989	260	7.8556	9.4083	0.9549	0.9262	0.0036	1.7389
Lokotrack LT105 Crusher	1999	300	1.4423	6.1645	0.2085	0.2022	0.0036	0.2294

Table 2-5. Calculated Exhaust Emissions, Non-Road Equipment

Construction Equipment	Load Factor	Rating (hp)	Exhaust Emissions (g/s)					
			CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC
Atlas Copco Flexiroc T35	0.43	225	0.0019	0.0075	0.0002	0.0002	0.0001	0.0041
Atlas Copco Flexiroc T40	0.43	225	0.0019	0.0374	0.0002	0.0002	0.0001	0.0041
Hitachi ZX 800 Excavator	0.59	454	0.1158	0.2196	0.0203	0.0197	0.0003	0.0151
Hitachi ZX 450 Excavator	0.59	349	0.0890	0.1688	0.0156	0.0151	0.0002	0.0116
Cat 330 DL Excavator	0.59	268	0.0574	0.1277	0.0124	0.0120	0.0002	0.0104
Komatsu PC360 Excavator	0.59	257	0.0048	0.0118	0.0004	0.0004	0.0001	0.0065
John Deere 750J Dozer	0.59	168	0.0420	0.0803	0.0115	0.0112	0.0001	0.0066
Cat 966H Loader	0.59	286	0.0602	0.1361	0.0125	0.0121	0.0002	0.0110
Cat 930K Loader	0.59	1670	0.0037	0.0370	0.0003	0.0003	0.0001	0.0041
Cat D25C Water Truck	0.21	1670	0.1191	0.1427	0.0145	0.0140	0.0001	0.0264
Lokotrack LT105 Crusher	0.43	1670	0.0517	0.2209	0.0075	0.0072	0.0001	0.0082

While the emissions for each piece of equipment for a given hour are determined by the equipment horsepower and load factor, daily emissions are limited in the modeling analysis to the following time periods:

- ▶ November through May;
- ▶ Monday through Friday; and
- ▶ 7:00 am through 5:00 pm.

2.3 Fugitive Dust Emissions

Fugitive dust emissions result from the crushing of rock, haul road truck travel on both the paved and unpaved road surfaces, loader traffic on unpaved surfaces, and disturbed earth due to bull dozing. Standard USEPA emission factors from AP-42 are used to estimate the fugitive dust emissions. The construction activities performed at the site will follow best management practices typical of such projects for fugitive dust emissions.

2.3.1 Crushing Operations

For crushing operations, the material throughput is based on the amount of material that can be transported by the haul trucks each day. The haul trucks have a capacity of 43.7 tons per load. At a rate of 6 trucks per hour (60 trucks per day, 10 hour per day operation), the maximum throughput is 262.2 ton/hr. AP-42 reports emission factors for crushing operations of 0.0024 lb of PM₁₀ per ton of rock processed and 0.0001 lb of PM_{2.5} per ton of rock processed. Multiplying the material throughput of 262 ton/hr by the emission factors results in the fugitive dust emission rates provided in Table 2-6.

2.3.2 Haul Truck Loading Operations

For haul truck loading operations, fugitive dust emission factors are calculated using the AP-42 drop operations emission equations, which are provided in Appendix A. The calculation includes the use of local mean wind speed (7.6 mph based on data collected at the nearby Pease Airport) and the moisture content of the excavated material (2.1% based on AP-42 for stone quarrying and processing, various limestone products). The resulting emission factors for haul truck loading operations are 0.0018 lb of PM₁₀ per ton of rock processed and 0.0003 lb of PM_{2.5} per ton of rock processed. Multiplying the material throughput of 262 ton/hr by the emission factors results in the fugitive dust emission rates provided in Table 2-6.

2.3.3 Haul Truck Travel on Paved Roads

For haul truck travel on paved road surfaces, fugitive dust emissions are calculated using the AP-42 equations, which are provided in Appendix A. For paved surfaces, the calculation includes the use of silt loading (0.6 g/m², highest value listed in AP-42 for public roads) and haul truck weight (59.7 tons, average of empty and full load conditions). The resulting emission factors for paved surfaces are 0.090 lb of PM₁₀ per VMT and 0.020 lb of PM_{2.5} per VMT. Multiplying the VMT per hour travel rates on paved roads by the emission factors results in the paved road fugitive dust emission rates provided in Table 2-6.

2.3.4 Haul Truck Travel on Unpaved Roads

For haul truck travel on unpaved road surfaces, fugitive dust emissions are calculated using the AP-42 equations, which are provided in Appendix A. For unpaved surfaces, the calculation includes the use of silt content (4.8%, AP-42 value for sand and gravel operations) and haul truck weight (59.7 tons, average of empty and full load conditions). The construction operation will be using fugitive dust mitigation by applying sufficient water to achieve 80% control of

emissions. The resulting emission factors for unpaved surfaces are 0.505 lb of PM₁₀ per VMT and 0.253 lb of PM_{2.5} per VMT. Multiplying the VMT per hour travel rates on unpaved roads by the emission factors results in the unpaved road fugitive dust emission rates provided in Table 2-6.

2.3.5 Front End Loader Travel on Unpaved Site Surfaces

For front end loader travel on unpaved site surfaces, fugitive dust emissions are calculated using the same AP-42 equations cited above for haul truck travel on unpaved roads. For unpaved surfaces, the calculation includes the use of silt content (4.8%, AP-42 value for sand and gravel operations) and front end loader weight (15 tons, average of empty and full load conditions). The construction operation will be using fugitive dust mitigation by applying sufficient water to achieve 80% control of emissions. The resulting emission factors for unpaved surfaces are 0.271 lb of PM₁₀ per VMT and 0.136 lb of PM_{2.5} per VMT. The loader is assumed to travel 600 feet round trip for each load deposited to the haul truck. With a bucket capacity of 8.1 tons, the loader would make roughly 33 round trips and travel 3.7 miles each hour. Multiplying the VMT per hour travel rate by the emission factors results in the unpaved road fugitive dust emission rates provided in Table 2-6.

2.3.6 Bulldozer Operations

For bulldozing operations, fugitive dust emissions are calculated using the AP-42 equation for coal mine overburden disturbance caused by bulldozing, which is provided in Appendix A. The calculation includes the use of silt content (6.9%, AP-42 value for overburden) and moisture content (7.9%, AP-42 value for overburden). The construction operation will be using fugitive dust mitigation by applying sufficient water to achieve 80% control of emissions. The resulting fugitive dust emission rates are provided in Table 2-6.

Table 2-6. Calculated Fugitive Dust Emissions

Operation	Emissions (g/s)	
	PM ₁₀	PM _{2.5}
Crushing	0.0792	0.0033
Dust from Truck Loading	0.0592	0.0090
Dust from Paved Roads	0.046	0.011
Dust from Unpaved Roads	0.219	0.022
Dust from Loader Traffic	0.126	0.013
Dust from Bulldozing	0.0190	0.0104

3.0 AMBIENT AIR QUALITY IMPACT ANALYSIS

The USEPA preferred dispersion model, AERMOD (Version 15181) was used to estimate air quality impacts from the construction activities. AERMOD was run with default options except for modeling of nitrogen dioxide (NO₂), for which the Ambient Ratio Method Version 2 (ARM2) option was used. ARM2 accounts for the fact that the majority of oxides of nitrogen are emitted as nitric oxide (NO) and not as NO₂. ARM2 applies fixed ambient ratios of nitrogen oxides and has been coded into AERMOD since version 12345. The ARM2 approach is still sufficiently conservative with studies showing it overestimates NO₂ impacts by more than a factor of 1.2 times.

With regard to VOC emissions, NAAQS have not been established for VOC. VOC are regulated as a precursor of ozone, for which a NAAQS exists. Modeling of ozone formation is a complex exercise performed by the MEDEP to show the state's emissions of ozone precursors, combined with transport of ozone and precursors from upwind states, meet the NAAQS established for ozone. Therefore, VOC emissions are treated qualitatively in this analysis.

3.1 Background Air Quality

The total air quality impact requires the inclusion of background pollutant concentrations. Recommended background concentrations were obtained from the Maine Department of Environmental Protection (MEDEP). The values listed in Table 3-1 are a conservative representation of background air concentrations at a rural location in southern Maine, as described in more detail in Section 3.3, below. The values provided for averaging periods of 24 hours or less are among the highest values measured over a 3-year period. The concept is to provide assurance that a project can meet National Ambient Air Quality Standards (NAAQS) even on days when background air quality conditions are at their worst. MEDEP allows consideration of a more refined background air quality evaluation when more realistic values are appropriate. For example, background air quality can vary by season, time of day, wind direction, and wind speed. These factors can be accounted for in air quality analyses, but were not considered for the purposes of this report.

Table 3-1. Background Air Quality Concentrations

Pollutant	Averaging Period	Background Concentration (µg/m ³)
CO	1-Hour	365
	8-Hour	322
NO ₂	1-Hour	43
	Annual	4
PM ₁₀	24-Hour	41
	Annual	9
PM _{2.5}	24-Hour	17
	Annual	5
SO ₂	1-Hour	24
	3-Hour	18
	24-Hour	11
	Annual	1

Background concentrations are based on measured data from the following monitoring sites:

- CO – MacFarland Hill, Acadia National Park
- NO₂ – MicMac Site, Presque Isle
- PM₁₀ – Upper Ridge Road Site, Bridgton
- PM_{2.5} – Greenville Site, Greenville
- SO₂ – MicMac Site, Presque Isle (1-Hour); MacFarland Hill, Acadia National Park (all other averaging periods)

3.2 Receptors

AERMOD calculates ambient air quality concentrations at specified locations or receptors. A receptor grid was constructed beyond the perimeter of the construction site, and includes coverage of the existing Yankee Commons homes located to the west. Figure 3-1 shows the receptors located closest to the construction site. Existing Yankee Commons homes can be seen in the background of the figure, showing the receptors provide appropriate coverage.

Figure 3-1. Modeled Receptor and Source Locations



The receptor grid consists of more than 2,500 receptors contained in five nested cartesian grids. Receptor spacing is as follows for each of the grids:

- ▶ inner grid = 25 meters,
- ▶ second grid = 100 meters
- ▶ third grid = 200 meters,
- ▶ fourth grid = 400 meters, and
- ▶ outer grid = 800 meters.

The grid extends 8 kilometers to the north, south, east, and west of the site, with a total coverage of 16 kilometers by 16 kilometers.

Receptor elevations were assigned by using USEPA's AERMAP software tool (version 11103; USEPA, 2011), which is designed to extract elevations from USGS Digital Elevation Model (DEM) files and USGS National Elevation Dataset (NED) files. AERMAP is the terrain preprocessor for AERMOD and uses the following procedure to assign elevations to a receptor:

- ▶ For each receptor, the program searches through the USGS input files to determine the two profiles (longitudes or eastings) that straddle this receptor.
- ▶ For each of these two profiles, the program then searches through the nodes in the USGS input files to determine which two rows (latitudes or northings) straddle the receptor.
- ▶ The program then calculates the coordinates of these four points and reads the elevations for these four points.
- ▶ A 2-dimensional distance-weighted interpolation is used to determine the elevation at the receptor location based on the elevations at the four nodes determined above.

NED data with a resolution of 1/3 arc-second (roughly 10 meters) were used as inputs to AERMAP. The NED data were obtained from the USGS Seamless Data Server and covers a domain ranging from 42.625°N to 43.375°N in latitude and 70.375°W to 71.000°W in longitude.

This domain is sufficient to properly account for terrain that would factor into AERMAP's critical hill height calculations. Receptor elevations generated by AERMAP were then visually confirmed with actual USGS 7.5-minute topographic maps to ensure accurate representation of terrain features.

3.3 Urban Land Use Assessment

Dispersion coefficients for air quality modeling were selected based on the land use classification technique suggested by Auer (Auer, 1978), which is the preferred method of the USEPA as stated in their Guideline on Air Quality Models. The classification determination involves assessing land use by Auer's categories within a 3-kilometer radius of the proposed site. Urban dispersion coefficients should be selected if greater than 50 percent of the area consists of urban land use types; otherwise, rural coefficients apply.

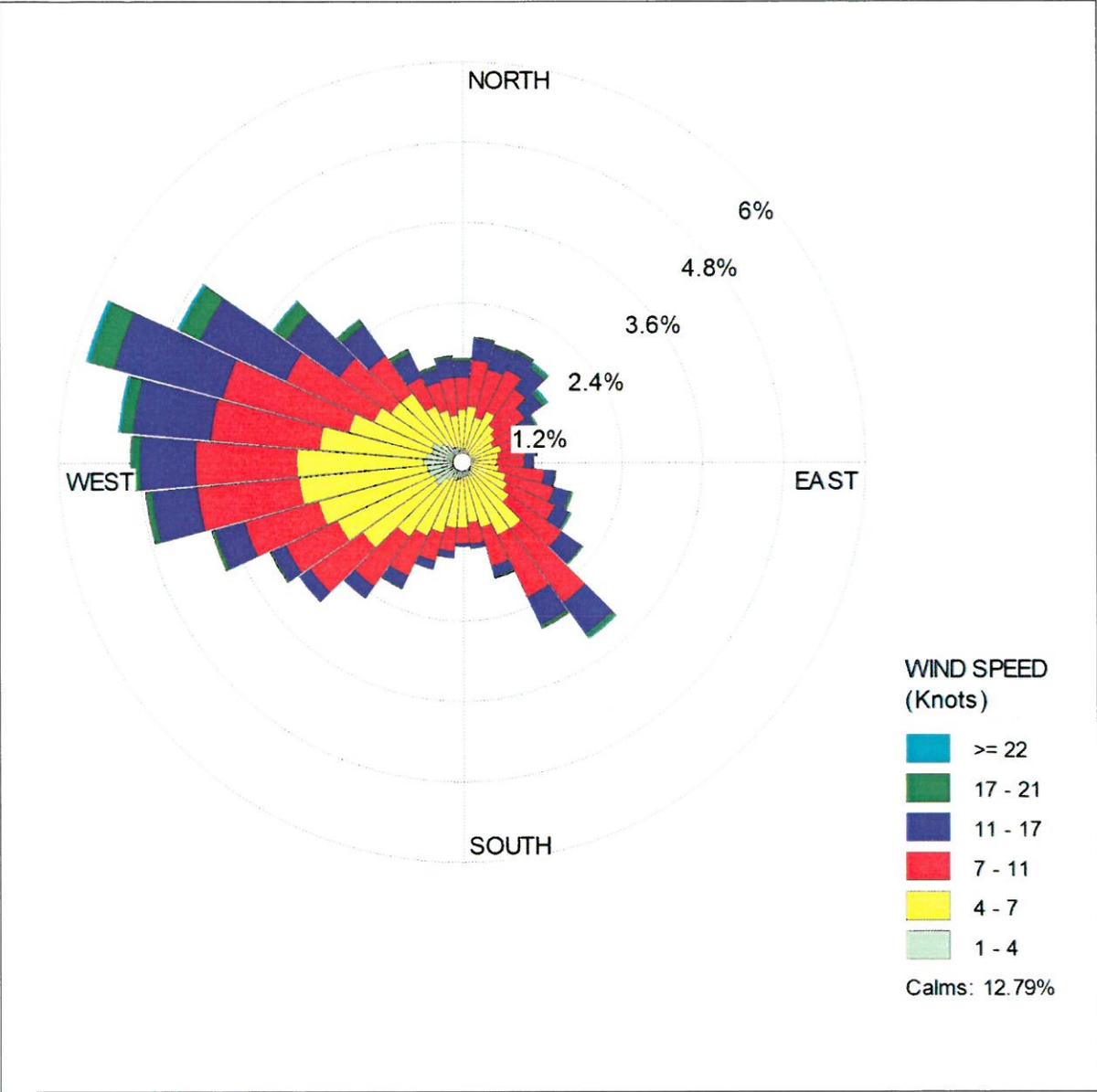
In evaluating the construction site, the area within 3 kilometers of the facility is primarily rural. Therefore, rural dispersion coefficients were selected for the air quality modeling analysis.

3.4 Meteorology

AERMOD requires hourly meteorological data. A five year (2008 to 2012) AERMOD-ready dataset for the Pease International Airport (Pease) was obtained from the New Hampshire Department of Environmental Services (NHDES) and used in the model. The AERMOD-ready data set is based on surface data measured by the National Weather Service (NWS) at Pease and upper air data measured by the NWS at Gray, Maine. This dataset is representative of

local meteorological conditions in Kittery. The profile base elevation of the Pease NWS monitoring site is 109 feet. A windrose showing the frequency distribution of the winds for the five year period is presented in Figure 3-2.

Figure 3-2. Wind Rose for Pease International Airport Meteorological Data (2008-2012)



3.5 Emission Sources

AERMOD is equipped to model sources as point (stack), area, volume, or line source types, among others. Because the vertical distribution of emissions ranges from ground surfaces, upward through tires, loading activities, and equipment tailpipe exhaust, the volume source type was selected to represent all fugitive and tailpipe emissions. The point source type, which requires a fixed release location, is not representative of mobile equipment tailpipe exhaust due to the movement of the equipment.

All operations were limited in AERMOD to the following time periods:

- ▶ November through May;
- ▶ Monday through Friday; and
- ▶ 7:00 am through 5:00 pm.

3.5.1 Volume Sources

Although equipment and operations will occur in various areas at various times throughout the project, a conservative approach was taken in placing equipment for modeling purposes. Four general construction areas were defined as shown in Figure 3-1. Removal of the rock ledge occurs in Areas A and D, with the Flexiroc T40 drill rig, the Hitachi ZX 800 excavator, the Cat 966H front end loader, and the John Deere 750J bulldozer assigned to operate in these areas on a given workday. The crusher was defined as a separate source near Area D and material transfer operations from the crusher to the haul trucks was assumed to occur in Area D. Although the bulldozer may be operating in other areas during rock ledge work, its emissions were limited to Area D as a conservative approach.

Removal of the rock ledge also occurs in Area C, with the Flexiroc T35 drill rig, the Hitachi ZX450 excavator, and the Cat 930K front end loader assigned to operate in this area simultaneously on the same workday as the equipment operating in Areas A and D.

The Cat 330 DL Excavator was assigned to Area B, and the Komatsu PC360 Excavator was assigned to Area E. Again, these equipment were assumed to operate in these areas simultaneously on the same workday as the equipment operating in Areas C, A, and D.

The water truck is the only source that was assumed to be operational in all areas throughout the day. The water truck emissions were assigned to each of the areas proportional to each area's size.

AERMOD volume source parameters include the initial lateral dimension (σ_y), which is defined as the length of the volume source side divided by 4.3, and the initial vertical dimension (σ_z), which for surface based emission sources is defined as the release height divided by 2.15. Table 3-2 lists the volume source input parameters and modeled emission rates.

Note that the release height and σ_z values for particulate emissions were set at reduced values of 2.93 meters and 0.68 meters, respectively, to account for the lower release height of fugitive dust compared to tailpipe exhaust.

Table 3-2. AERMOD Volume Source Parameters and Emissions

AERMOD Source ID	Base Elev. (m)	Release Height (m)	Length (m)	σ_y (m)	σ_z (m)	Emission Rate (g/s)				
						CO	NO ₂	PM ₁₀	PM _{2.5}	SO ₂
CONST_A	19.48	3.23	66.39	15.44	0.75	0.1249	0.2546	0.0963	0.0348	0.0003
CONST_B	19.35	3.23	115.66	26.90	0.75	0.1003	0.1792	0.0176	0.0170	0.0002
CONST_C	15.21	3.23	103.26	24.01	0.75	0.1289	0.2544	0.1458	0.0322	0.0004
CONST_D	16.39	3.23	70.22	16.33	0.75	0.1258	0.2557	0.1557	0.0439	0.0003
CONST_E	12.79	3.23	59.18	13.76	0.75	0.0161	0.0253	0.0017	0.0017	0.0001
CRUSHFUG	20.15	1.70	7.00	1.63	0.79	--	--	0.0792	0.0033	--

3.5.2 Point Sources

Because the crusher is stationary on a given workday, exhaust emissions from its tailpipe can be modeled as a point source (note that fugitive dust from crusher operations is not emitted through a stack, which is why crusher fugitive dust emissions were modeled as a volume source). Table 3-3 lists the crusher stack parameters and emission rates.

Table 3-3. AERMOD Point Source Parameters and Emissions

AERMOD Source ID	Base Elev. (m)	Release Height (m)	Pipe Diam. (m)	Exit Vel. (m/s)	Exit Temp. (K)	Emission Rate (g/s)				
						CO	NO ₂	PM ₁₀	PM _{2.5}	SO ₂
CRUSHPT	15.34	1.7	0.091	14.374	422.04	0.0517	0.2209	0.0075	0.0072	0.0001

3.5.3 Line Sources

Roadway emissions from haul truck exhaust and fugitive dust were modeled as line sources. Line source parameters include the length (defined by beginning and ending coordinates), width, and the initial vertical dimension defined as the release height divided by 2.15. Table 3-4 lists the line source input parameters and modeled emission rates.

Table 3-4. AERMOD Line Source Parameters and Emissions

AERMOD Source ID	Base Elev. (m)	Release Height (m)	Length (m)	Width (m)	σ_z (m)	Emission Rate (g/s)				
						CO	NO ₂	PM ₁₀	PM _{2.5}	SO ₂
CONSTRD	14.06	3.23	264.5	15.85	1.5	0.00770	0.01826	0.12679	0.01367	0.00003
WILSONLN	12.08	3.23	106.3	15.85	1.5	0.00309	0.00734	0.00944	0.00265	0.00001
NEWRD1	21.5	3.23	102.9	15.85	1.5	0.00299	0.00710	0.04933	0.00532	0.00001
NEWRD2	18.12	3.23	94.3	15.85	1.5	0.00274	0.00651	0.04520	0.00487	0.00001
IDLWOOD	18.66	3.23	67.3	15.85	1.5	0.00196	0.00464	0.00597	0.00167	0.00001
USRUTE1	22.28	3.23	375.6	19.00	1.5	0.00464	0.01262	0.03245	0.00852	0.00002

3.6 Model Results

Table 3-5 shows the AERMOD-predicted concentration for each pollutant (maximum predicted concentration unless noted otherwise), the corresponding background value, and the total air quality impact. All predicted concentrations are less than the NAAQS, which are designed by USEPA to be protective of human health and welfare.

In presenting the results, it is important to understand that the presented results are maximum predicted concentrations in the modeling domain (i.e., receptor grid). This means that the single presented value represents the maximum concentration predicted at the worst-case receptor location during worst-case meteorological conditions combined with worst-case background air quality conditions. Due to the low release heights, the worst-case receptor is located at the immediate boundary of construction operations. Predicted concentrations decrease considerably at receptors located away from the boundary, such that residences would be expected to have lower air quality concentrations than those presented in Table 3-5.

Further, and as noted previously, the ARM2 method for predicting ambient NO₂ concentration has been shown to overestimate NO₂ impacts by more than a factor of 1.2 times. USEPA does allow additional analysis to be performed to further refine NO₂ analysis (USEPA, 2011b). Were such additional analysis to be performed, the maximum predicted concentration would be less than that shown in Table 3-5.

Thus, the air quality impact analysis demonstrates that emissions from the planned construction activities will meet the NAAQS at all times and locations, and will therefore not be harmful to human health or the environment.

Table 3-5. Air Quality Impact Analysis Results

Pollutant	Averaging Period	AERMOD Predicted Conc. (µg/m ³)	Background Conc. (µg/m ³)	Total Predicted Conc. (µg/m ³)	NAAQS Allowable Threshold (µg/m ³)
CO	1-Hour	727.6	365	1,093	40,000
	8-Hour	147.5	322	470	10,000
NO ₂	1-Hour	143.9 ^a	43	187	188
	Annual	2.8	4	6.8	100
PM ₁₀	24-Hour	49.9 ^b	41	90.9	150
	Annual	3.4	9	12.4	50 ^c
PM _{2.5}	24-Hour	14.4	17	31.4	35
	Annual	0.6	5	5.6	12
SO ₂	1-Hour	1.9	24	25.9	196
	3-Hour	0.8	18	18.8	1,300
	24-Hour	0.2	11	11.2	365 ^d
	Annual	0.005	1	1.0	80 ^d

^a 8th highest predicted concentration, as allowed by the NAAQS.

^b 6th highest predicted concentration, as allowed by the NAAQS.

^c The NAAQS for annual average PM₁₀ was revoked in 2006, but is presented here for comparison.

^d The NAAQS for 24-hour and annual average SO₂ were revoked in 2010, but are presented here for comparison.

3.7 Volatile Organic Compounds

With regard to VOC emissions, NAAQS have not been established for VOC. VOC are regulated as a precursor of ozone, for which a NAAQS exists. Modeling of ozone formation is a complex exercise performed by the MEDEP to show the state's emissions of ozone precursors, combined with transport of ozone and precursors from upwind states, meet the NAAQS established for ozone. **The construction project's emissions of ozone precursors are a tiny fraction of those emitted from the neighboring Maine Turnpike and US Route 1. Because emissions from these major highways do not contribute to adverse ozone formation, one can readily conclude that the Project's ozone precursor emissions will not result in ozone concentrations that exceed the NAAQS. Furthermore, background ozone concentrations peak in the summer months due to atmospheric photochemistry (i.e., ozone season), but the project will be performed during the months of November through May thereby avoiding the ozone season.**

4.0 CONCLUSION

An ambient air quality impact analysis was performed to evaluate air quality impacts resulting from construction activities associated with the proposed expansion of Yankee Commons. Construction equipment were identified and emissions were calculated for each unit. The construction activities performed at the site will follow best management practices typical of such projects. The AERMOD dispersion model was set up to simulate the transport of emissions from the site and predict ambient concentrations of CO, NO₂, PM₁₀, PM_{2.5}, and SO₂. Additional discussion regarding VOC emissions was provided to address ozone formation. **The air quality impact analysis demonstrates that emissions from the planned construction activities will meet the NAAQS at all times and locations.**

5.0 REFERENCES

40 CFR Part 51, Appendix W. Guideline on Air Quality Models.

American Petroleum Institute, 2013. *Ambient Ratio Method Version 2 (ARM2) for use with AERMOD for 1-hour NO₂ Modeling*.

Auer, A. H., 1978. "Correlation of Land Use and Cover with Meteorological Anomalies", JAM, Volume 17.

Trinity Consultants, 2007. *Modeling Fugitive Dust Sources with AERMOD*. Prepared for the National Stone, Sand & Gravel Association (NSSGA). January 2007.

USEPA, 2010a. *Modeling Procedures for Demonstrating Compliance with PM_{2.5} NAAQS*. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. March 23, 2010.

USEPA, 2010b. *Notice Regarding Modeling for New Hourly NO₂ NAAQS*. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. February 25, 2010.

USEPA, 2010c. *Applicability of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard*. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. June 28, 2010.

USEPA, 2010d. *Guidance Concerning the Implementation of the 1-hour NO₂ NAAQS for the Prevention of Significant Deterioration Program*. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. June 29, 2010.

USEPA, 2011a. *User's Guide for the AERMOD Terrain Preprocessor (AERMAP)*. EPA-454/B-03-003, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, April 2011.

USEPA, 2011b. *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard*. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. March 1, 2011.

USEPA, 2014b. *Guidance for PM_{2.5} Permit Modeling*. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. May 20, 2014.

USEPA, 2015a. *User's Guide for the AMS/EPA Regulatory Model - AERMOD*. EPA-454/B-03-001, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, June 2015.

USEPA, 2015b. *User's Guide for the AERMOD Meteorological Preprocessor (AERMET)*. EPA-454/B-03-002, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, June 2015.

Appendix A

Emissions Calculations

Non-Road Calculations

Equipment: # / Yr / Model	GVW (lbs)	HP	Engine	Assumed SCC	MOVES-Derived Emission Factor (g/hp-hr)						Load Factor	Work Area	Emission Rate (g/s) with load factor applied					
					CO	NOx	PM10	PM2.5	SO2	VOC			CO	NOx	PM10	PM2.5	SO2	VOC
1 – 2014 Atlas Copco Flexiroc T35	34,170	225	Cat® C7.1, Tier 4/stage IIIB	2270002033	0.0714	0.2803	0.0084	0.0081	0.0026	0.1537	0.4300	C	0.0019	0.0075	0.0002	0.0002	0.0001	0.0041
1 – 2012 Atlas Copco Flexiroc T40	34,170	225	Cat® C7.1, Tier 4/stage IIIB	2270002033	0.0723	1.3924	0.0087	0.0085	0.0026	0.1540	0.4300	A,D	0.0019	0.0374	0.0002	0.0002	0.0001	0.0041
1 – 2006 Hitachi ZX 800 Excavator	166,900	454	Isuzu BB-6WG1T	2270002036	1.5565	2.9515	0.2724	0.2642	0.0036	0.2023	0.5900	A,D	0.1158	0.2196	0.0203	0.0197	0.0003	0.0151
1 – 2006 Hitachi ZX 450 Excavator	103,838	349	Isuzu AH-6WG1XYS-A-01	2270002036	1.5565	2.9515	0.2724	0.2642	0.0036	0.2023	0.5900	C	0.0890	0.1688	0.0156	0.0151	0.0002	0.0116
1 – 2008 Cat 330 DL Excavator with 8,000# hammer	79,700	268	Cat® C9 ACERT	2270002036	1.3064	2.9085	0.2812	0.2728	0.0036	0.2359	0.5900	B	0.0574	0.1277	0.0124	0.0120	0.0002	0.0104
1 – 2015 Komatsu PC360 Excavator	79,930	257	Komatsu SAA6D114E-5	2270002036	0.1146	0.2806	0.0090	0.0087	0.0026	0.1543	0.5900	E	0.0048	0.0118	0.0004	0.0004	0.0001	0.0065
1 – 2008 John Deere 750J Dozer	37,725	168	JD 6068H	2270002069	1.5242	2.9167	0.4182	0.4057	0.0040	0.2394	0.5900	A,D	0.0420	0.0803	0.0115	0.0112	0.0001	0.0066
1 – 2008 Cat 966H Loader	52,254	286	Cat® C11 ACERT	2270002060	1.2841	2.9042	0.2667	0.2587	0.0036	0.2351	0.5900	A,D	0.0602	0.1361	0.0125	0.0121	0.0002	0.0110
1 – 2012 Cat 930K Loader	30,479	162	Cat® C6.6 ACERT	2270002060	0.1394	1.3953	0.0099	0.0096	0.0029	0.1551	0.5900	C	0.0037	0.0370	0.0003	0.0003	0.0001	0.0041
1 – 2006 Cat 740 Haul Truck	72,400	454	Cat® C15 ACERT	2270002051	see on-road emissions								see on-road emissions					
1 – 1989 Cat D25C Off Road Water Truck	43,431	260	Cat 3306	2270002078 ⁽¹⁾	7.8556	9.4083	0.9549	0.9262	0.0036	1.7389	0.2100	all	0.1191	0.1427	0.0145	0.0140	0.0001	0.0264
Totals without crusher													0.496	0.969	0.088	0.085	0.001	0.100

1 – 1999 Nordberg Lokotrack LT105 Jaw Crusher	82,200	300	Cat® C9 ACERT	2270002054	1.4423	6.1645	0.2085	0.2022	0.0036	0.2294	0.4300	Exhaust	0.0517	0.2209	0.0075	0.0072	0.0001	0.0082
Rock crushing capacity	400 mtph (440 stph)		AP-42 Table 11.19.2-2 (lb/Ton)	305003003		lb/ton	0.0024	0.0001	lb/ton			Crushing			0.0792	0.0033		
Diesel burning average	1.3 gallons/hour																	
Crusher Totals													0.0517	0.2209	0.0866	0.0105	0.0001	0.0082

Material Handling Emissions

Loading of Rock	2,618 tons/day	AP-42 13.2.4																
Fugitive Dust from Land Disturbances		CalEEMod based on AP42										D			0.0592	0.0090		
Loader Travel	see on-road sheet											A,D			0.0190	0.0104		
												C,D			0.1256	0.0126		

AP-42 Drop Operation Emissions for Truck Loading

$$E = k(0.0032) \left(\frac{U}{5}\right)^{1.3} \left(\frac{M}{2}\right)^{1.4}$$
 (pound [lb]/ton)

U=mean wind speed (mph) 7.579 average of AERMET SFC wind speeds
 M= Moisture Content (%) 2.1 AP-42 Table 13.2.4-1 Stone quarrying and processing, various limestone products
 k (PM10) = 0.35 AP-42 0.001796 lb/ton
 K (PM2.5) = 0.053 AP-42 0.000272 lb/ton

Bulldozing

Operation	Material	Emissions By Particle Size Range (Aerodynamic Diameter) ^{2,c}				Units	EMISSION FACTOR RATING
		Emission Factor Equations		Scaling Factors			
		TSP ≤30 μm	≤15 μm	≤10 μm ^d	≤2.5 μm TSP ^e		
Bulldozing	Coal	$\frac{78.4 (s)^{1.2}}{(M)^{1.2}}$	$\frac{18.6 (s)^{1.2}}{(M)^{1.2}}$	0.75	0.022	lb-hr	CCDD
	Overburden	$\frac{5.7 (s)^{1.2}}{(M)^{1.2}}$	$\frac{1.0 (s)^{1.2}}{(M)^{1.2}}$	0.75	0.105	lb-hr	BCDD

5.7 Ctsf
 1 Cpm15
 7.9 M
 6.9 s
 0.75 Fpm10 0.150552 lb/hr
 0.105 Fpm2.5 0.120141 lb/hr
 80% Control Efficiency (water assumed)

Area	m2	CO g/s	NOx g/s	PM10 g/s	PM2.5 g/s	SO2 g/s
A	4,645	0.1249	0.2546	0.0963	0.0348	0.0003
B	13,378	0.1003	0.1792	0.0176	0.0170	0.0002
C	10,663	0.1289	0.2544	0.1458	0.0322	0.0004
D	4,931	0.1258	0.2557	0.1557	0.0439	0.0003
E	3,502	0.0161	0.0253	0.0017	0.0017	0.0001
total	37,118	0.4959	0.9691	0.4171	0.1297	0.0013

Notes:

- Daily material processing will be approximately 1,800 to 2,000 cy per day
- Operations assumed to occur between 7:00am and 5:00pm each day, seven days per week
- Operations assumed to occur from November through May
- Posted speed limit on US Route 1 is 45 mph. All other road travel between the site and Route 1 is limited to a speed of 10 mph

On-Road Calculations

Project Road Parameters										
Link	Surface	Start Coords		End Coords		One-Way Trip Length		Road Width meters	Veh. Speed mph	Traverse Time sec/veh
		UTME	UTMN	UTME	UTMN	meters	miles			
Construction Road	Unpaved	360,876.70	4,776,986.31	360,863.95	4,776,722.13	264.5	0.164	15.85	10.0	59.16
Wilson Lane	Paved	360,863.95	4,776,722.13	360,957.51	4,776,671.59	106.3	0.066	15.85	10.0	23.79
New Road Link 1	Unpaved	361,051.79	4,776,672.67	361,123.98	4,776,599.32	102.9	0.064	15.85	10.0	23.02
New Road Link 2	Unpaved	360,957.51	4,776,671.59	361,051.79	4,776,672.67	94.3	0.059	15.85	10.0	21.09
Idlewood Lane	Paved	361,123.98	4,776,599.32	361,177.13	4,776,558.11	67.3	0.042	15.85	10.0	15.04
US Route 1	Paved	361,177.13	4,776,558.11	361,451.74	4,776,814.43	375.6	0.233	19.00	45.0	18.67
Totals	Paved					173.6	0.108		10.0	38.83
	Paved					375.6	0.233		45.0	18.67
	Paved					549.2	0.341		All	57.50
	Unpaved					461.7	0.287		10.0	103.28

Project Road Emissions													
Link	Paved Roads						Unpaved Roads						
	PM10 (g/s)	PM2.5 (g/s)	DPM (g/s)	NO2 (g/s)	CO (g/s)	SO2 (g/s)	PM10 (g/s/m2)	PM2.5 (g/s/m2)	DPM (g/s/m2)	NO2 (g/s/m2)	CO (g/s/m2)	SO2 (g/s/m2)	
Construction Road	0.12679	0.01367	0.00121	0.01826	0.00770	0.00003	3.025E-05	3.262E-06	2.890E-07	4.357E-06	1.836E-06	7.215E-09	
Wilson Lane	0.00944	0.00265	0.00049	0.00734	0.00309	0.00001	5.602E-06	1.570E-06	2.890E-07	4.357E-06	1.836E-06	7.215E-09	
New Road Link 1	0.04933	0.00532	0.00047	0.00710	0.00299	0.00001	3.025E-05	3.262E-06	2.890E-07	4.357E-06	1.836E-06	7.215E-09	
New Road Link 2	0.04520	0.00487	0.00043	0.00651	0.00274	0.00001	3.025E-05	3.262E-06	2.890E-07	4.357E-06	1.836E-06	7.215E-09	
Idlewood Lane	0.00597	0.00167	0.00031	0.00464	0.00196	0.00001	5.602E-06	1.570E-06	2.890E-07	4.357E-06	1.836E-06	7.215E-09	
US Route 1	0.03245	0.00852	0.00082	0.01262	0.00464	0.00002	4.546E-06	1.193E-06	1.150E-07	1.769E-06	6.494E-07	3.433E-09	

Fugitive Dust Emissions Calculations										
Paved Roads				Unpaved Roads				Front End Loader Activity (Unpaved Surfaces)		
$E = k (sL)^{0.91} \times (W)^{1.02}$ from AP42 Section 13.2.1										
k=	0.0022 lb/VMT	PM10		k=	1.5 lb/VMT	PM10		k=	1.5 lb/VMT	PM10
k=	0.00054 lb/VMT	PM2.5		k=	0.15 lb/VMT	PM2.5		k=	0.15 lb/VMT	PM2.5
sL =	0.6 g/m2	highest value for public roads		s =	4.8 %	mean for sand and gravel		s =	4.8 %	mean for sand and gravel
W =	37.9 tons empty			W =	37.9 tons empty			W =	15.0 tons average	
	81.6 tons full				81.6 tons full				8.1 bucket capacity, tons	
	59.7 tons average				59.7 tons average					
	43.6 moved rock, tons per load			a=	0.9 industrial roads			a=	0.9 industrial roads	
	2,618 moved rock, tons per day			b=	0.45 industrial roads			b=	0.45 industrial roads	
E=	0.090 lb PM10/VMT			E=	uncontrolled	controlled		E=	uncontrolled	controlled
	0.022 lb PM2.5/VMT				2.527 lb PM10/VMT	0.505 lb PM10/VMT			1.357 lb PM10/VMT	0.271 lb PM10/VMT
					0.253 lb PM2.5/VMT	0.253 lb PM2.5/VMT			0.136 lb PM2.5/VMT	0.136 lb PM2.5/VMT
Day Hours	10 hours assumed (7am to 5pm)			Day Hours	10 hours assumed (7am to 5pm)			VMT =	600 feet assumed (per round trip)	
VMT =	0.683 miles assumed (per trip in and out)			VMT =	0.574 miles assumed (per trip in and out)			VMT =	0.114 miles assumed (per round trip)	
# trips	60 per day	6.00 per hour		# trips	60 per day	6.00 per hour		# trips	323 per day	32.32 per hour
				Control	80%			Control	80%	
Fugitive Emission	0.046 g PM10/s			Fugitive Emission	0.219 g PM10/s			Fugitive Emission	0.126 g PM10/s	
	0.011 g PM2.5/s				0.022 g PM2.5/s				0.013 g PM2.5/s	

MOVES Exhaust Emissions Calculations, On-Road Haul Trucks							
Pollutant	Vehicle Speed = 45 mph			Vehicle Speed = 10 mph			g/s
	MOVES EFs (g/VMT)	Total VMT/hr		Pollutant	MOVES EFs (g/VMT)	Total VMT	
CO	5.957	2.801	0.004635	CO	14.049	4.737	0.018486
NOx	16.225		0.012624	NOx	33.330		0.043856
PM10	1.055		0.000821	PM10	2.211		0.002909
PM2.5	0.971		0.000755	PM2.5	2.034		0.002676
SO2	0.031		0.000025	SO2	0.055		0.000073
VOC	1.474		0.001147	VOC	5.745		0.007560