TETRA TECH

April 18, 2013

Paul Cincotta
New England Development
One Wells Avenue
Newton, MA 02459

Re: University Station
Response to Stormwater Management Peer Review Comments

Dear Paul:

Tetra Tech has completed our review of stormwater management peer review comments provided by BETA dated December 17, 2012. These comments are related to the November 30, 2012 submittal made to the Town. For ease of review, responses are numbered to coincide with the numbering system utilized in the original letter. Responses are shown in *italic* font.

Stormwater Management Report and Grading and Drainage Plans

Comment G1:
Provide revised watershed plans to make all watershed label links readable.

Response:
The existing and proposed watershed plans have been updated and are included with the March 22, 2013 submittal to the Town. The revised plans are included in Appendix B of the Stormwater Management Report.

Comment G2:
Provide labels on watershed plans for all nodes (e.g. 1R and 48R are missing from the proposed watershed model).

Response:
The existing and proposed watershed plans have been updated and are included with the March 22, 2013 submittal to the Town. The revised plans are included in Appendix B of the Stormwater Management Report.

Comment G3:
Provide revised grading and drainage plans to make all structures and pipe data readable. Suggest showing only 5 foot contours and no stockpiles with limits of proposed work.

Response:
The grading and drainage plans were updated and included with the March 22, 2013 submittal to the Town. The existing conditions information was screened such that the proposed information

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is more easily discernible.

Comment G4:
Provide notations on plans to clearly identify the disposition of all existing drainage structures and pipe segments within project limits.

Response:
Disposition of existing drainage structures and piping will be shown as part of the Construction Documents.

Comment G5:
Show proposed Stormceptor locations drawn to scale on plans.

Response:
Stormceptors will be drawn to scale as part of the Construction Documetns.

Comment G6:
Direct all roof areas to infiltration systems.

Response:
The drainage system has been revised such that all proposed roof areas are directed to stormwater infiltration systems. The updated calculations and plans were included with the March 22, 2013 submittal to the Town.

Comment G7:
Provide drainage system modification to University Ave. to accommodate changes in roadway layout.

Response:
The University Avenue drainage system modifications will be included as part of the roadway design plans. The University Avenue improvement plans are currently being prepared by others and will be provided to the Town for review.

Comment G8:
Provide structure and pipe data for east portion of project.

Response:
This is a future phase of the project. Structure and pipe data for the eastern portion (Village) portion of the project will be provided as part of the Project Design Review for this future phase.

Comment G9:
Provide backup for groundwater recharge assumption for water balance report.

Response:
A Stormwater Infiltration Data Report was prepared by Sanborn, Head & Associates and included with Appendix F of the March 22, 2013 Stormwater Management Report. Additional documentation is forthcoming per the April 16th team meeting.

Comment G10:
Provide documentation for how 84.3 ac. Of impervious surface was determined for recharge calculations. It is not clear from the tables or appendix.

Response:
Updated recharge calculations were completed and included as part of the March 22, 2013 submittal to the Town. The actual impervious area is calculated to be 86.6 acres. A figure depicting the proposed infiltration basin watersheds was presented at the March 18, 2013 meeting with BETA.

Comment G11:
Clarify method used for recharge volume calculations. There are inconsistencies between text, tables, footnotes, and calculations throughout the document.

Response:
Recharge volume calculations were made using the dynamic field method. Updated calculations are included in Appendix D of the March 22, 2013 Stormwater Management Report.

Comment G12:
The stormwater report references the former Westwood Station project SWMM model for detailed information regarding ground covers, soil groups, and time of concentrations – this is not acceptable. The current stormwater report should be a comprehensive, stand-alone document that includes all relevant input data for both the existing and proposed conditions.

Response:
Additional detailed ground cover, soil group, and time of concentration information for both the existing and proposed conditions has been incorporated into the March 22, 2013 Stormwater Management Report.

Comment G13:
Provide mitigation to reduce post construction peak runoff rates to at or below those from the previously approved existing conditions in POA3 for the 25 and 100 year storm events.

Response:
As discussed at a January 11, 2013 meeting with BETA, the previously approved stormwater model underestimated existing flows at POA3 as a result of the model allowing the existing stormwater infrastructure to act as detention structures when they were operating above capacity. The current model allows the network to release flows exceeding system capacity through catch basin grates, structure covers, etc. This provides a more accurate model of the

existing condition.

The peak runoff rates and volume of runoff directed to POA3 in the proposed condition for all analyzed storm events has been significantly reduced from the existing condition when compared to the current existing conditions model. The updated calculations are included with the March 22, 2013 Stormwater Management Report.

Comment G14:
Provide documentation for how exfiltration rates used in calculations were determined from hydraulic conductivity values provided in geotechnical stormwater report.

Response:
A Stormwater Infiltration Data Report was prepared by Sanborn, Head & Associates and included with Appendix F of the March 22, 2013 Stormwater Management Report.

Comment G15:
Show all structures including below grade drain to scale to verify that there are no conflicts with drainage components.

Response:
The proposed drainage pipes are drawn to scale and shown on the March 22, 2013 plan submittal.

Comment G16:
Show snow storage areas or document snow removal operation and maintenance plans.

Response:
Snow will be pushed to the bottom parking rows associated with the longitudinal landscaped islands or relocated to the undeveloped portions of the property east of University Avenue. Should parking demands require, snow will be removed to an off-site location.

At no time will snow be stored within the 400-ft Zone I Wellhead. A figure depicting snow storage locations is attached with this letter.

Comment G17:
Verify that landscape plantings will not conflict with drainage systems or snow storage.

Response:
Landscape plantings have been located and designed such that they do not conflict with the drainage systems. The updated landscaping and drainage designs were included with the March 22, 2013 submittal to the Town.

Existing Conditions

Comment E2.1:
Include Link 19L in HydroCAD output.

Response:
Link 19L is included with the March 22, 2013 Stormwater Management Report. The HydroCAD information is included in Appendix B.

Comment E2.2:
Care should be taken to ensure that subwatersheds, reaches, and ponds that are to remain unchanged in the proposed conditions are input and modeled the same as in the existing and proposed conditions. Refer to routing of subwatersheds S1 to S3.

Response:
Subwatersheds that are to remain unchanged in the existing and proposed conditions are now modeled in the same fashion. The updated HydroCAD information is included in Appendix B of the March 22, 2013 Stormwater Management Report.

Comment E2.3:
Provide verification that the outlet pipe L69 is in fact a 60 inch RCP in good condition. During construction of the previous project this was discovered to be comprised on various sizes and materials and in poor condition and alignment. It was about to be replaced with a new 54 inch RCP.

Response:
As discussed at the January 11, 2013 meeting with BETA, the existing 60 inch RCP drainage pipe will remain in its current location. However, a new 54 inch RCP drainage pipe will be installed parallel to the existing 60 inch drainage line, consistent with the previous project's approval.

The existing 60 inch pipe and the proposed 54 inch pipe will be collected in a proposed stormwater vault prior to discharge. The detail for this vault is included on Sheet C-506 of the March 22, 2013 submittal to the Town.

Comment E3.1:
Reaches and ponds upgradient of Reach L108 do not appear to reflect the existing drainage configuration at Pear Tree Drive and Endicott Street. Revise the HydroCAD model to reflect the existing configuration and appropriately route flow offsite.

Response:
The existing and proposed HydroCAD models have been updated to reflect the drainage configuration in Pear Tree Drive and Endicott Street. The updated calculations are included in Appendix B of the March 22, 2013 Stormwater Management Report.

Proposed Conditions

Comment P1.1:
Provide grading and drainage system for residential units off Canton Street.

Response:
Residential units are not currently proposed for the portion of the property adjacent to Canton Street. Accordingly, no proposed information is included on the plan set.

Comment P1.2:
Provide outlet structure for pond 30P on grading and drainage plan.

Response:
The outlet control structure associated with pond 30P is shown on the Grading and Drainage Plan included with the March 22, 2013 submittal to the Town.

Comment P1.3:
Provide erosion control measures for outlets and swales.

Response:
Proposed stormwater outlets intended to discharge above ground will include rip-rap aprons to prevent erosion at their terminus. The specifications for each of the aprons will be included on the site construction documents.

Comment P1.4:
Provide outlet to swale along Harvard Street near DMH 619.

Response:
The shallow stormwater conveyance channel adjacent to Harvard Street is directed overland to the sediment forebay associated with Basin 30P. The inlet to the forebay will be reinforced with rip-rap to prevent erosion.

Comment P1.5:
Provide soil test data to show seasonal high groundwater elevations.

Response:
Additional information regarding seasonal high groundwater elevations was prepared by Sanborn, Head & Associates and has been provided under separate cover. A Groundwater Elevation Plan is included with that document.

Comment P1.6:
Recommend providing some infiltration making basin 30P an extended basin. The bottom of the basin is shown at elevation 49 and the pond empties through the outlet structure (in calculations and detail) at elevation 49. The peak elevation for the 100 year storm is calculated at elevation 51.47 while the overflow is at elevation 52.5 indicating there is at least 1 foot of storage for

infiltration.

Response:
Basin 30P has been converted into a stormwater basin/wetland system. It has been designed to have standing water below the lowest outlet to support a diverse plant community that will assist in the removal of nutrients from stormwater prior to discharge. A liner system is proposed beneath the bottom of the basin to ensure the basin remains wet. As such, the basin is not intended to infiltrate stormwater.

Comment P1.7:
Show on plan the replacement of existing 24 inch RCP (L57) with a new 48 inch RCP to match calculations. Recommend daylighting this pipe, combining flows and expanding detention/infiltration basin and/or installing a constructed wetland in this area.

Response:
Pipe L57 is proposed to be removed as part of the project. A new 48 inch RCP pipe will replace it. The pipes will be daylighted upon reaching Basin 30P. This design is included with the March 22, 2013 plan submission.

Comment P2.1:
Provide verification that outlet pipe L69 is in fact a 60 inch RCP in good condition. During construction of the previous project this was discovered to be comprised of various sizes and materials and in poor condition and alignment. It was about to be replaced with a new 54 inch RCP.

Response:
As discussed at the January 11, 2013 meeting with BETA, the existing 60 inch RCP drainage pipe will remain in its current location. However, a new 54 inch RCP drainage pipe will be installed parallel to the existing 60 inch drainage line, consistent with the previous project's approach.

The existing 60 inch pipe and the proposed 54 inch pipe will be collected in a proposed stormwater vault prior to discharge. The detail for this vault is included on Sheet C-506 of the March 22, 2013 submittal to the Town.

Comment P2.2:
Provide soil test and seasonal high groundwater elevation for proposed infiltration system. Note that recharge calculations utilizing the dynamic field method require a field derived saturated hydraulic conductivity value to be determined.

Response:
A Stormwater Infiltration Data Report was prepared by Sanborn, Head & Associates and included with Appendix F of the March 22, 2013 Stormwater Management Report.

Comment P3.1:

Representations at public hearings were that the two ponds at the intersection of University Ave and Blue Hill Drive (52.1P and 52.2P) were to be wet ponds. Calculations indicate that the outlets of these ponds are at elevation 47, the same elevation of the bottom of the ponds. Recommend that the applicant provide a design by a botanist and/or wetland scientist to certify that the pond will sustain aquatic plants and species.

Response:
As discussed at the January 11, 2013 meeting with BETA, Basins 30P, 52.1P, and 52,2P have been converted into a stormwater basin/wetland systems. They have been designed to have standing water below the lowest outlet to support a diverse plant community that will assist in the removal of nutrients from stormwater prior to discharge. A liner system is proposed beneath the bottom of the basin to ensure the basin remains wet.

The planting plans associated with each basin have been designed by a registered landscape architect. Details for each of the basins are included on Sheets C-510 and C-511 of the March 22, 2013 plan submission to the Town.

Comment P3.2:
Provide outlet structure for ponds 52.1P & 52.2P on plan.

Response:
Outlet control structure locations for ponds 52.1P and 52.2P are included with the March 22, 2013 plan submission. Details for each structure on included on Sheet C-506.

Comment P3.3:
Provide erosion control measures for outlets and swales.

Response:
Proposed stormwater outlets intended to discharge above ground will include rip-rap aprons to prevent erosion at their terminus. The specifications for each of the aprons will be included on the site construction documents.

Comment P3.4:
Provide soil test data to show seasonal high groundwater elevations.

Response:
Additional information regarding seasonal high groundwater elevations was prepared by Sanborn, Head & Associates and has been provided under separate cover. A Groundwater Elevation Plan is included with that document.

Comment P3.5:
Verify down-gradient, off-site drainage infrastructure is in good condition and can accommodate peak flows and volume of runoff from this project.
Response:

An assessment of the existing, off-site drainage infrastructure for POA3 and POA4 was provided to the Town and BETA on March 15, 2013.

Comment P3.6:
Reaches and ponds upgradient of Reach L108 do not appear to reflect the existing drainage configuration at Pear Tree Drive and Endicott Street. Revise the HydroCAD model to reflect the existing configuration and appropriately route flow offsite.

Response:
The existing and proposed HydroCAD models have been updated to reflect the drainage configuration in Pear Tree Drive and Endicott Street. The updated calculations are included in Appendix B of the March 22, 2013 Stormwater Management Report.

Comment P3.7:
Replace existing 12" steel pipe associated with Reach L176 with a new pipe.

Response:
The condition of the existing 12" steel drainage pipe associated with Reach L176 will be inspected during construction. The pipe will be replaced if it is determined that it is in need of repair.

Comment P3.8:
Ponds 52.1P and 52.2P have less than one foot of freeboard for the 100-yr design storm. Revise ponds and/or outlet structures to provide at least on foot of freeboard.

Response:
The designs associated with Ponds 52.1P and 52.2P have been updated to reflect their conversion to stormwater basin/wetland systems. The basins have a minimum of 1-foot of freeboard for the 100-year storm. The updated calculations are included in Appendix B of the March 22, 2013 Stormwater Management Report.

Comment P4.1:
Work is shown on MBTA property. Provide documentation from MBTA indicating approval or proposed work and connection to their drainage system.

Response:
The proposed drainage outlet associated with POA4 will be through an existing 36" drainage pipe located within the limits of the property controlled by the project. No work is proposed on property owned by the MBTA.

Comment P4.2:
Provide soil test and seasonal high groundwater elevation data for proposed infiltration system.

Response:

Additional information regarding soil testing and seasonal high groundwater elevations was prepared by Sanborn, Head & Associates and has been provided under separate cover. A Groundwater Elevation Plan is included with that document.

Comment P4.3:
Verify that down-gradient, off-site drainage infrastructure is in good condition and can accommodate peak flows and volume of runoff from this project.

Response:
An assessment of the existing, off-site drainage infrastructure for POA3 and POA4 was provided to the Town and BETA on March 15, 2013.

Comment P4.4:
This area may be more amenable to various low impact development techniques.

Response:
Additional stormwater infiltration structures have been incorporated in this area. These structures are shown on the plans associated with the March 22, 2013 submittal. Additional impervious surface is now collected, treated, and conveyed to infiltration systems prior to discharge.

As always, please do not hesitate to contact me should you have any questions or wish to discuss any of the enclosed information in greater detail. I can be reached directly at (508) 903-2085.

Sincerely,

Nathan H. Cheal, P.E.
Project Manager

C: John Twohig, Esq. – Goulston & Storrs
Bob Daylor, PE, PLS - Tt

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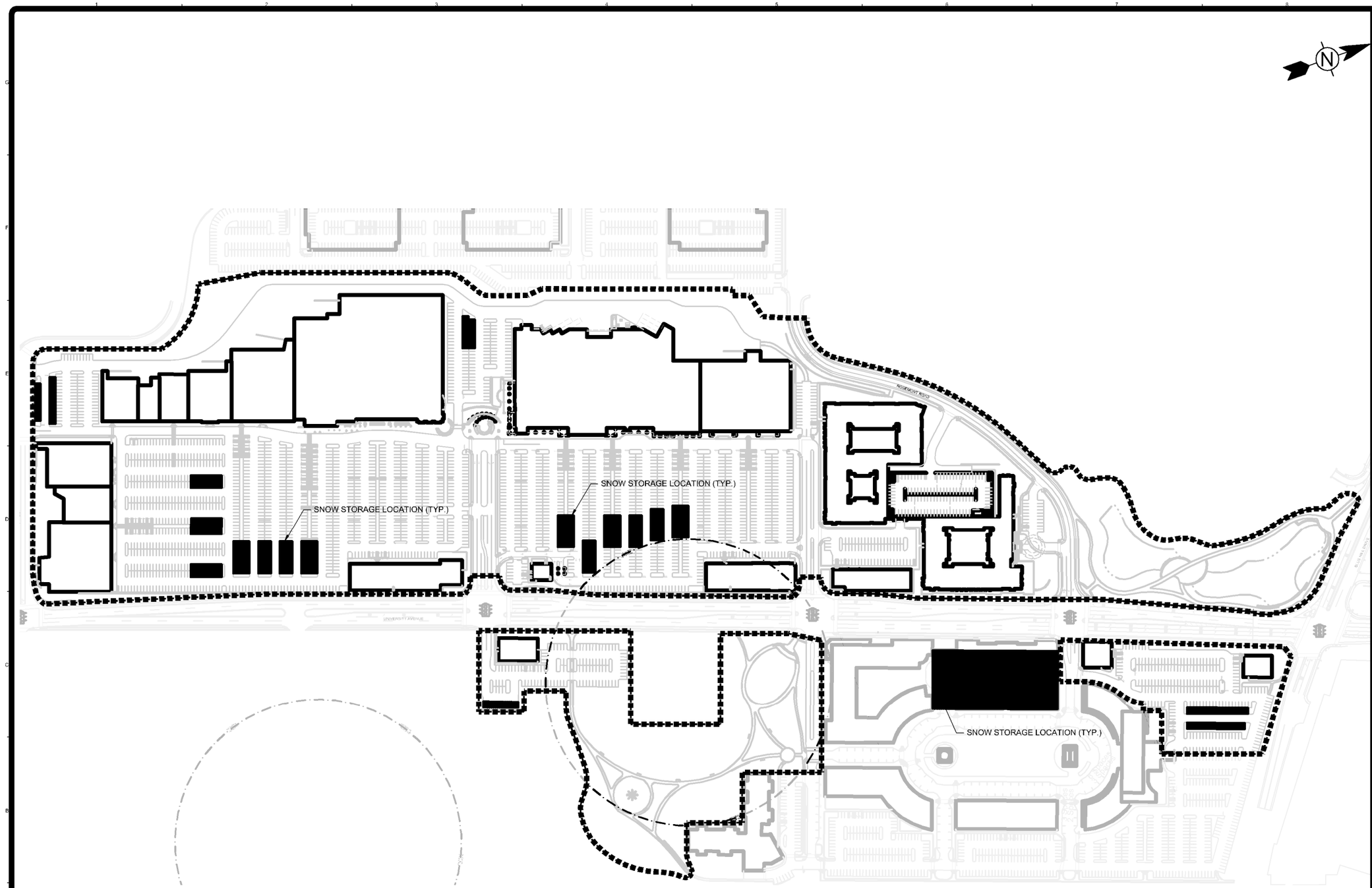

NOTE

1. AT NO TIME WILL SNOW BE STORED WITHIN THE 400 FOOT ZONE 1 WELLHEAD RADIUS.

LEGEND:

SNOW STORAGE LOCATION

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MARK	DATE	DESCRIPTION	BY

Client: Westwood Marketplace Holdings, LLC
Proj. Loc.: University Station - University Avenue
University Station - University Avenue Redevelopment

Snow Storage Locations Plan

Project No.:	127-3659-12003
Designed By:	A.F.T./M.K.M.
Drawn By:	J.V.B./S.C.V.
Checked By:	N.H.C./R.F.D.

SS

Bar Measures 1 Inch

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