

Neptune Center JSP14-10

Neptune Center, JSP14-10

Consideration of the request of Dorchen/Martin Associates, Inc. for Neptune Center for Preliminary Site Plan and Stormwater Management Plan approval. The subject property is 3.9 acres located in Section 15 of the City of Novi at 44300 Grand River Avenue on the north side of Grand River Avenue, in the I-2, General Industrial District. The applicant is proposing a 20,000 square foot office and industrial facility.

Required Action

Approval/Denial of the Preliminary Site Plan and Stormwater Management Plan.

REVIEW	RESULT	DATE	COMMENTS
Planning	Approval recommended	02/13/15	Items to be addressed on the final site plan submittal
Engineering	Approval recommended	02/11/15 Updated: 02/18/15	Items to be addressed on the final site plan submittal
Traffic	Approval recommended	02/06/15	Items to be addressed on the final site plan submittal
Landscaping	Approval recommended	02/13/15	Items to be addressed on the final site plan submittal
Facade	Approval not Recommended	02/12/15	 Section 9 waiver required for underage of brick and overage of CMU Proposed color pigment is not similar to natural clay brick
Fire	Approval recommended	02/02/15	Items to be addressed on the final site plan submittal

Motion Sheet

Approval -Preliminary Site Plan

In the matter of the request of Dorchen/Martin Associates, Inc. for Neptune Center, JSP14-10, motion to **approve** the <u>Preliminary Site Plan</u> based on and subject to the following:

- a) Section 9 Waiver for underage of brick and overage of CMU on all facades provided the applicant works with the City's façade consultant to determine an appropriate color pigment for the proposed CMU product, which is hereby granted; and
- b) The findings of compliance with Ordinance standards in the staff and consultant review letters and the conditions and the items listed in those letters being addressed on the Final Site Plan;
- c) (additional conditions here if any)

This motion is made because the plan is otherwise in compliance with Article 3, Article 4 and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.

-AND-

Approval -Stormwater Management Plan

In the matter of the request of Dorchen/Martin Associates, Inc. for Neptune Center JSP14-10, motion to **approve** the <u>Stormwater Management Plan</u> based on and subject to the following:

- a) The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
- b) (additional conditions here if any)

This motion is made because the plan is otherwise in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.

-OR-

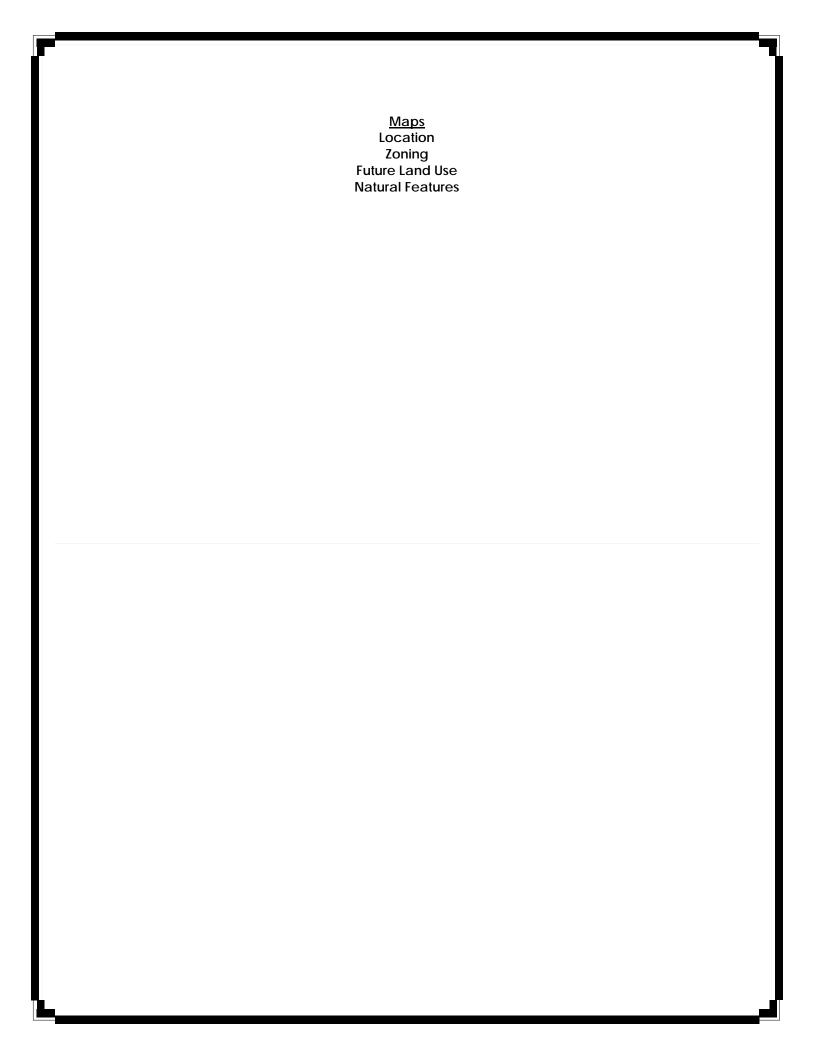
Denial -Preliminary Site Plan

In the matter of request of Dorchen/Martin Associates, Inc. for Neptune Center JSP14-10, motion to **deny** the <u>Preliminary Site Plan</u>, for the following reasons... (because the plan is not in compliance with Article 3, Article 4 and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.)

-AND-

Denial -Stormwater Management Plan

In the matter of request of Dorchen/Martin Associates, Inc. for Neptune Center JSP14-10, motion to **deny** the <u>Stormwater Management Plan</u>, for the following reasons... (because the plan is not in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.)



JSP14-10 Neptune Center



Map Legend

Subject Properties







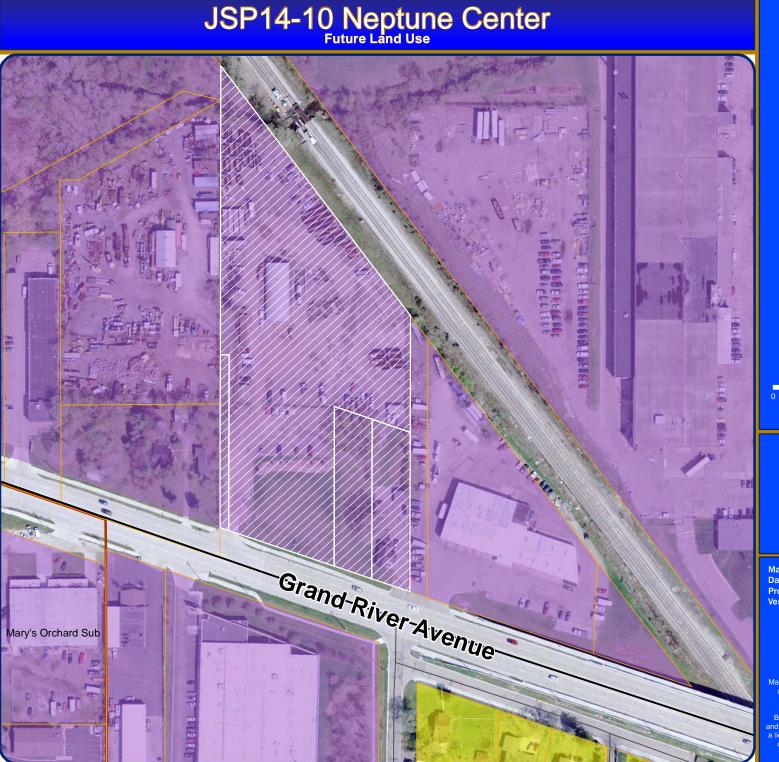
City of Novi

Planning Division Community Development Dept. 45175 W Ten Mile Rd Novi, MI 48375 cityofnovi.org

Map Author: Kristen Kapelanski Date: 02-19-15 Project: Neptune Center JSP14-10 Version #: 1.0

MAP INTERPRETATION NOTICE

JSP14-10 Neptune Center Map Legend **Subject Properties** R-4: One-Family Residential District I-1: Light Industrial District I-2: General Industrial District 1 inch = 167 feet City of Novi **Planning Division** Community Development Dept. 45175 W Ten Mile Rd Novi, MI 48375 cityofnovi.org -Grand-River-Avenue-Map Author: Kristen Kapelanski Date: 02-19-15 Project: Neptune Center JSP14-10 Version #: 1.0 Mary's Orchard Sub **MAP INTERPRETATION NOTICE**



Map Legend
Subject Properties

Single Family
Industrial RD Tech







City of Novi

Planning Division
Community Development Dept.
45175 W Ten Mile Rd
Novi, MI 48375
cityofnovi.org

Map Author: Kristen Kapelanski Date: 02-19-15 Project: Neptune Center JSP14-10 Version #: 1.0

MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.



Map Legend

Subject Properties

Wetlands

Woodlands







City of Novi

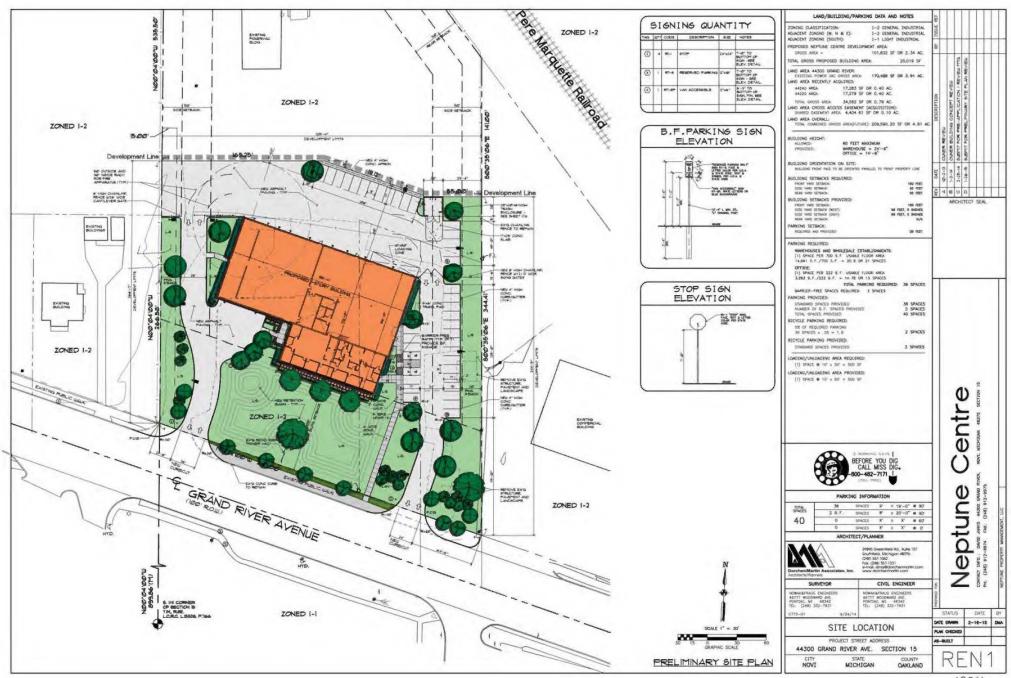
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Site Plan (Full plan set available for viewing at the Community Development Department.)					









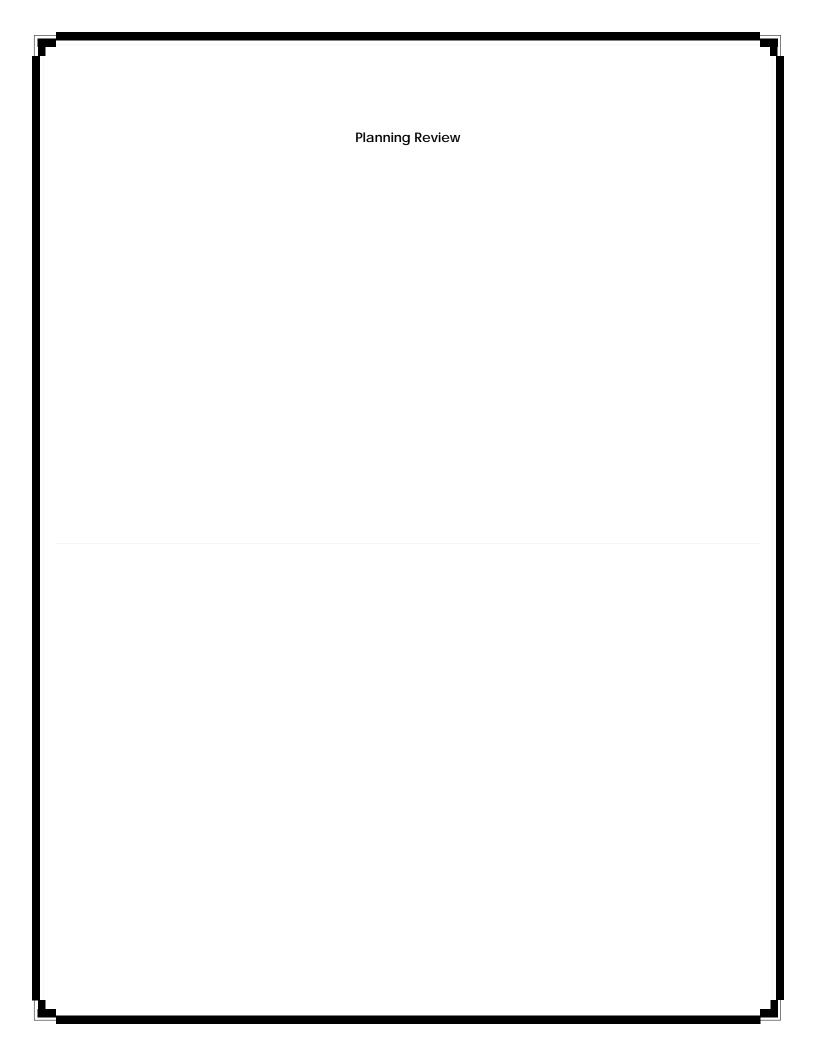


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PLAN REVIEW CENTER REPORT

February 13, 2015

Planning Review

Neptune Center **JSP14-10**

Petitioner

Dorchen/Martin Associates, Inc.

Review Type

Preliminary Site Plan

Property Characteristics

• Site Location: 44300 Grand River Ave., North side of Grand River Ave., west of Novi Rd.

(Section 15)

Site Zoning:
 I-2, General Industrial

Adjoining Zoning: North, East and West: I-2; South (across Grand River Ave.): I-1

Current Site Use: Existing Powervac

Adjoining Uses:
 All Directions: Various industrial

• School District: Novi

• Site Size: 3.9 acres (Development Area: 2.34 acres)

• Plan Date: 01-26-15

Project Summary

The applicant is proposing to construct an approximately 20,000 square foot office and industrial building with associated parking and landscaping on the existing Powervac property at 44300 Grand River. The site plan indicates the proposal will incorporate two adjacent parcels fronting on Grand River Avenue as well as the front portion of the existing Powervac property. The rear of the Powervac property will remain as is.

Recommendation

Planning staff recommends approval of the Preliminary Site Plan. However, a revised submittal of the plans is required for engineering and façade. Please make the appropriate corrections to address the items in those two review letters and submit 3 revised sets of plans for review along with the Site Plan Revision Application.

Ordinance Requirements

This project was reviewed for conformance with the Zoning Ordinance with respect to Article 3.1.19 (I-2, General Industrial District), Article 4 (Use Standards), Article 5 (Site Standards) and any other applicable provisions of the Zoning Ordinance. Items in **bold** below must be addressed by the applicant.

- Required Parking Spaces: Parking spaces for industrial uses are partially based on the number of employees. It appears the proposed site will have enough spaces to accommodate the use. The applicant should indicate the number of employees in the largest working shift in their response letter.
- 2. <u>Lighting Plan:</u> There are several pieces of information missing from the proposed site lighting plan. The applicant should address the items identified in the lighting review chart as part of the final site plan. Additionally, it appears lighting levels are not sufficient near the building entrances. The applicant should add additional lighting to properly light the building entrances.
- 3. <u>Bicycle Parking:</u> Bicycle parking is required per Section 5.16 of the Zoning Ordinance. None has been provided. The applicant should provide the required bicycle parking spaces along with a detail of the bicycle parking layout.

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Neptune Center JSP14-10

- 4. <u>Economic Impact:</u> The applicant should provide the estimated total cost of proposed building and site improvements as well as the number of jobs anticipated both during and after construction as part of their response letter.
- 5. <u>Parcel Split:</u> At this time, no property combination or split has been submitted and the Community Development Department has not received a request for condominium approval that would affect the subject property. The applicant must create this parcel prior to Stamping Set approval. Plans will not be stamped until the parcel is created.
- 6. <u>Signage:</u> Exterior Signage is not regulated by the Planning Division or Planning Commission. Please contact Jeannie Niland (248.347.0438) for information regarding sign permits.

Site Addressing

The applicant should contact the Building Division for an address prior to applying for a building permit. Building permit applications cannot be processed without a correct address. The address application can be found on the Internet at www.cityofnovi.org under the forms page of the Community Development Department.

Please contact Jeannie Niland [248.347.0438] in the Community Development Department with any specific questions regarding addressing of sites.

Pre-Construction Meeting

Prior to the start of any work on the site, Pre-Construction (Pre-Con) meetings must be held with the applicant's contractor and the City's consulting engineer. Pre-Con meetings are generally held after Stamping Sets have been issued and prior to the start of any work on the site. There are a variety of requirements, fees and permits that must be issued before a Pre-Con can be scheduled. If you have questions regarding the checklist or the Pre-Con itself, please contact Sarah Marchioni [248.347.0430 or smarchioni@cityofnovi.org] in the Community Development Department.

Chapter 26.5

Chapter 26.5 of the City of Novi Code of Ordinances generally requires all projects be completed within two years of the issuance of any starting permit. Please contact Sarah Marchioni at 248-347-0430 for additional information on starting permits. The applicant should review and be aware of the requirements of Chapter 26.5 before starting construction.

Response Letter

A letter from either the applicant or the applicant's representative addressing comments in this and other review letters is required prior to consideration by the Planning Commission and with the next plan submittal.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.347.0586 or kkapelanski@cityofnovi.org.

William Kanada ali Diagram 240 247 0507 alilam landi

Kristen Kapelanski, Planner, 248.347.0586 or kkapelanski@cityofnovi.org

Attachments: planning and lighting review chart

Gish Lum.

PLANNING REVIEW SUMMARY CHART

Project Name: Neptune Center JSP14-10 Plan Date: 01-26-15 Preliminary Site Plan Review

	I	I	I.a.	1
Item	Required	Proposed	Meets Requirements?	Comments
Master Plan	Industrial Research	No Change	Yes	Comments
lactor i iarr	Development	Proposed	. 55	
	Technology	·		
Zoning	I-2 General Industrial	No Change	Yes	
	District	Proposed		
Use (Sec. 3.1.19)	Office, research &	20,000 sq. ft. light	Yes	
	development, technology centers,	industrial building		
	warehousing,			
	manufacturing,			
	laboratories, utility			
	buildings,			
	indoor/outdoor			
	recreation, other			
	similar uses, and			
Building Height	accessory structures 60 feet maximum	1 story (Approx. 25	Yes	
(Sec. 3.1.19.D)	oo leet maximum	feet)	Tes	
Building Setback	(Sec. 3.1.19.D)			
Front (south)	100 ft.	100 ft.	Yes	
Interior Side (east)	50 ft.	66 ft.	Yes	
Interior Side	50 ft.	56 ft.	Yes	
(west)				
Rear (north)	50 ft.	235 ft.	Yes	
	(Sec. 3.1.19.D and Sec. 3			
Front	Front yard parking	No front yard	NA	
(south)	permitted subject to	parking proposed		
L	(a) Dev. must be 2			
	acres (b) Must be setback			
	same as req.			
	bldg. setback			
	(100 ft.)			
	(c) Cannot occupy			
	more than 50% of			
	the area btwn.			
	min. front yard setback and			
	bldg. setback			
	(d) Must be			
	screened by			

	1	I		
11	De soudre d	Danisa	Meets	0
Item	Required	Proposed	Requirements?	Comments
	brick wall or landscaped berm Planning Commission must make finding that prkg. area and lighting is compatible w/ surrounding development			
Interior Side (east)	20 ft.	20 ft.	Yes	
Interior Side (west)	20 ft.	20 ft.	Yes	
Rear (north)	20 ft.	100 ft. +	Yes	
Number of Parking Spaces (Sec. 5.2.12)	Office - one space per 222 of GLA = 4,080 sq. ft./222 = 18 spaces Industrial/ Research - One space for each seven hundred square feet of usable floor area or five (5) plus one (1) for each one and one-half (1 ½) employees in the largest working shift, whichever is greater.	40 spaces	Yes?	Applicant should indicate the largest number of employees in the working shift for the industrial area.
Parking Space Dimensions and Maneuvering Lanes (Sec. 2506)	9' x 19' parking space dimensions and 24' wide drives. 9' x 17' parking spaces allowed along 7' wide interior sidewalks as long as detail indicates a 4" curb at these locations and along landscaping.	9' x 17' spaces provided with 4" curb 24' access aisles provided	Yes	
Barrier Free Spaces (Barrier Free Code)	2 barrier free spaces required (1 van accessible)	2 barrier free spaces proposed	Yes	

			Meets	
Item	Required	Proposed	Requirements?	Comments
Barrier Free Space Dimensions (Barrier Free Code)	8' wide with a 5' wide access aisle for standard barrier free spaces, and 8' wide with an 8' wide access aisle for van accessible spaces	Spaces sized appropriately	Yes	
Barrier Free Signs (Barrier Free Design Graphics Manual)	One sign for each accessible parking space.	Signs shown	Yes	
Loading Spaces (Sec. 2507)	Must be in rear yard and screened from right-of-way and neighboring properties - minimum 360 sq. ft.	500 sq. ft. provided in rear yard	Yes	
Accessory Structure Setback- Dumpster (Sec. 2503)	Accessory structures should be setback a minimum of 10 feet from any building unless structurally attached and setback the same as parking from all property lines; the structure must be in the rear or interior side yard.	Dumpster in the rear yard setback appropriately from proposed building and property line	Yes	

Itom	Doguiro d	Dranacad	Meets	Comments
Dumpster (Chap. 21, Sec. 21-145)	Required Screening of not less than 5 feet required, interior bumpers or posts required. Enclosure to match building materials and be at least one foot taller than	Screening details provided	Yes	Comments
Exterior lighting (Sec. 5.7)	height of refuse bin. Photometric plan and exterior lighting details needed at time of Final Site Plan	Lighting plan submitted	See lighting review chart	
Sidewalks (City Code Sec. 11-276(b) and Subdivision Ordinance Sec. 4.05A)	A 5'-8' wide sidewalk shall be constructed along all major thoroughfares and collectors per DCS, but not along industrial service streets per Subdivision Ordinance Building exits must be connected to sidewalk system or parking lot.	Building entrances connected to parking lot and BF ramps	Yes	
Bicycle Parking Facilities (Sec. 5.16)	5% of required auto parking spaces - 2 spaces Shall be located along the building approach line and easily accessible from the building entrance Max. 120 feet from entrance being served or the nearest auto parking space to that entrance Must be accessible via a paved 6 foot wide route and separated from auto facilities	No bicycle parking provided.	No	Applicant should provide required bike parking. Alternately, the applicant could request a waiver from the Planning Commission per the conditions noted in Section 5.16.

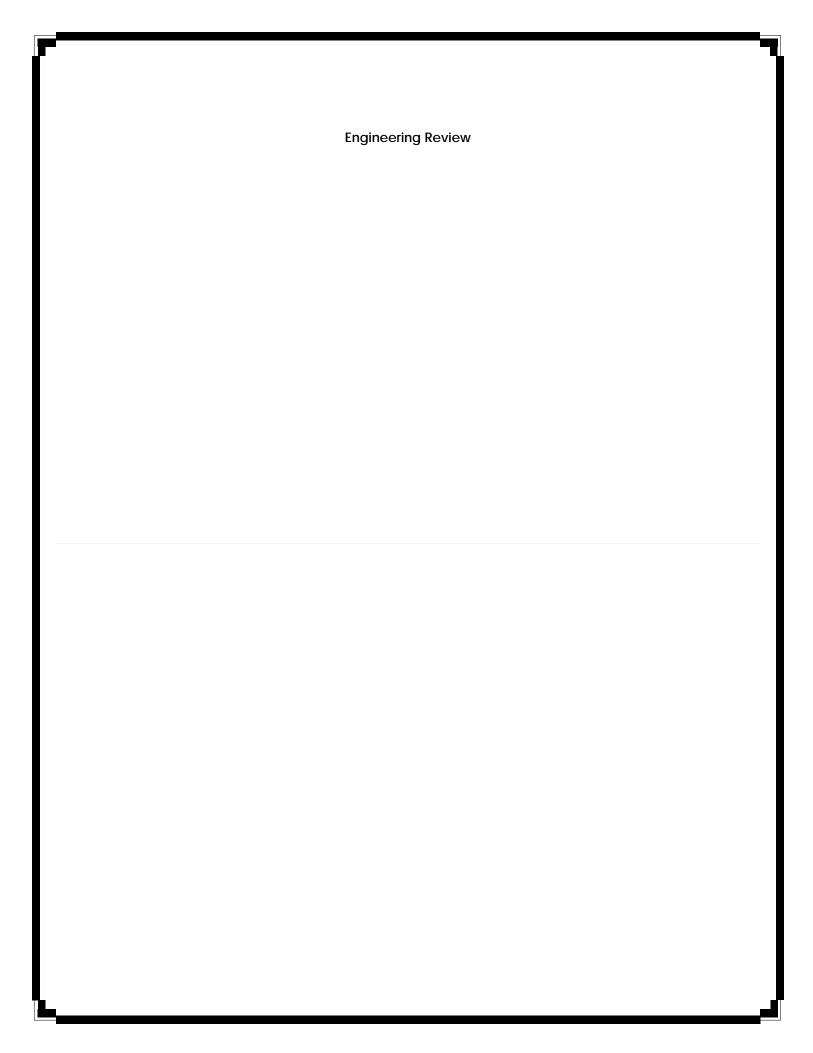
Item	Required	Proposed	Meets Requirements?	Comments
	4 foot wide maneuvering lane required with a 6 foot parking space width and a depth of 2 feet for single spaces and 2.5 feet for double spaces			
Economic Impact	Total cost of the proposed building & site improvements Number of anticipated jobs created (during construction & after building is occupied, if known)	Information not provided		Applicant should provide economic impact information as part of their response letter
Development/ Business Sign	Signage if proposed requires a permit.			Please contact Jeannie Niland (248.347.0438) for information on sign permits

Prepared by Kristen Kapelanski, AICP (248)347-0586

Lighting Review Summary Chart

	T	1
	Meets	
Item	Requirements?	Comments
Intent (Section 5.7.1)	Yes	
Establish appropriate minimum levels,		
prevent unnecessary glare, reduce		
spillover onto adjacent properties,		
reduce unnecessary transmission of		
light into the night sky	.,	
Lighting Plan (Section 5.7.2)	Yes	
Site plan showing location of all existing and proposed buildings, landscaping, streets, drives, parking areas and exterior lighting fixtures		
Lighting Plan (Section 5.7.2.A.ii)	No	Hours of operation not provided
Specifications for all proposed and existing lighting fixtures including: Photometric data Fixture height Mounting & design Glare control devices Type and color rendition of lamps Hours of operation Photometric plan		
Required conditions (Section 5.7.3.A)	Yes	
Height not to exceed maximum height of zoning district or 25 feet where adjacent to residential districts or uses.		
Required Notes (Section 5.7.3)	No	Required notes must be added to the site lighting plan
 Electrical service to light fixtures shall be placed underground No flashing light shall be permitted Only necessary lighting for security purposes and limited operations shall be permitted after a site's hours of operation. 		
Required conditions (Section 5.7.3.E)	Yes	

	Meets	
Item	Requirements?	Comments
Average light level of the surface		
being lit to the lowest light of the		
surface being lit shall not exceed 4:1.		
Required conditions	Yes	
(Section 5.7.3.F)		
Use of true color rendering lamps such		
as metal halide is preferred over high		
and low pressure sodium lamps.		
Minimum Illumination	No	Lighting at building entrances
(Section 5.7.3.K)		appears to be below the 1.0 foot
		candle minimum threshold
- Parking areas- 0.2 min		
- Loading and unloading areas- 0.4 min		
- Walkways- 0.2 min		
- Building entrances, frequent use- 1.0		
min		
- Building entrances, infrequent use- 0.2		
min		
Maximum Illumination adjacent to	Yes	
Non-Residential		
(Section.5.7.3.K)		
When site abuts a non-residential		
district, maximum illumination at the		
property line shall not exceed 1 foot		
candle		
Cut off Angles	Yes	
(Section 5.7.3.L)		
All cut off angles of fixtures must be 90		
degrees when adjacent to residential		
districts		
districts		



MEMORANDUM



TO:

BARBARA MCBETH; COMMUNITY DEVELOPMENT

FROM:

JEREMY MILLER, E.I.T.; STAFF ENGINEER // m

SUBJECT:

JSP14-0010 NEPTUNE CENTRE PRELIMINARY SITE PLAN UPDATE

DATE:

FEBRUARY 18, 2015

This memo is to provide an updated review of the preliminary site plan for Neptune Centre. Engineering issued a preliminary site plan review letter on February 11, 2015 that did not recommend approval of the plan. There were three comments in the letter that identify the reason for staff's recommendation for denial. The applicant has provided a response letter with additional information to address those comments. We are issuing this memo to update our recommendation as detailed below.

Comment 1—Water Main

The applicant has provided additional information on the proposed water main.

Comment 2—Sanitary Sewer

The applicant has agreed to revise the plans to provide each building, existing and proposed, with its own sanitary sewer lead each connected directly to a public sewer.

Comment 3—Storm Water Detention

The applicant has provided additional information and calculations showing that the proposed storm water detention pond meets the general requirements of the Chapter 11 of the Code of Ordinances.

Engineering now recommends approval of the revised concept plan subject to the applicant's response letter dated February 18, 2015 (attached) and the conditions listed above.

cc:

Brian Coburn, Engineering Manager Kristen Kapelanski, Planner



PLAN REVIEW CENTER REPORT

02/11/2015

Engineering Review

Neptune Centre JSP14-0010

Applicant

DORCHEN/MARTIN ASSOCIATES INC

Review Type

Preliminary Site Plan

Properly Characteristics

Site Location:

N. of Grand River Ave. and E. of Taft Rd.

Site Size:

4.81 acres

Plan Date:

01/26/15

Project Summary

- Construction of an approximately 20,019 square-foot building and associated parking. Site access would be provided by two private driveways from Grand river Ave.
- Water service would be provided by an existing water lead from the existing 16-inch water main along Grand River Ave. An extension from the existing 16-inch water main along the north side of Grand River Ave. would be provided for a fire lead would be provided to serve the building, along with an additional hydrant.
- Sanitary sewer service would be provided be connecting to the existing 6-inch lead from the existing building to the south.
- Storm water would be collected by a single storm sewer collection system and detained on site.

<u>Recommendation</u>

Approval of the Preliminary Site Plan and the Preliminary Storm Water Management Plan is NOT recommended.

Comments:

The Preliminary Site Plan does not meet the general requirements of Chapter 11 of the Code of Ordinances, the Storm Water Management Ordinance and/or the Engineering Design Manual. The following items must be addressed prior to resubmittal:

- 1. The applicant must provide additional information on the proposed water main.
- 2. Per section 11-166 of the City's Code all sanitary sewers that service more than one building must be built to City standards and dedicated to the City. The proposed sanitary service lead for the new building must either connect directly to a public sanitary sewer, or a sanitary sewer extension could be constructed on-site to provide sewer leads to each building.
- 3. The applicant must provide additional information and calculations for the proposed storm water detention pond.

Additional Comments (to be addressed prior to the Final Site Plan submittal):

General

- 4. Provide a note on the plans that all work shall conform to the current City of Novi standards and specifications.
- 5. The City standard detail sheets are not required for the Final Site Plan submittal. They will be required with the Stamping Set submittal. They can be found on the City website (www.cityofnovi.org/DesignManual).
- 6. Revise the plan set to reference at least one city established benchmark. An interactive map of the City's established survey benchmarks can be found under the 'Map Gallery' tab on www.cityofnovi.org.
- 7. Provide a minimum of two ties to established section or quarter section corners.
- 8. A sheet index shall be provided on the cover sheet.
- The Non-domestic User Survey form shall be submitted to the City so it can be forwarded to Oakland County. This form was included in the original site plan package.
- 10. Provide a traffic control sign table listing the quantities of each sign type proposed for the development. Provide a note along with the table stating all traffic signage will comply with the current MMUTCD standards.
- 11. Provide a note that compacted sand backfill shall be provided for all utilities within the influence of paved areas, and illustrate on the profiles.
- 12. Provide a construction materials table on the Utility Plan listing the quantity and material type for each utility (water, sanitary and storm) being proposed.
- 13. Provide a utility crossing table indicating that at least 18-inch vertical clearance will be provided, or that additional bedding measures will be utilized at points of conflict where adequate clearance cannot be maintained.
- 14. Generally, all proposed trees shall remain outside utility easements. Where proposed trees are required within a utility easement, the trees shall maintain a minimum 5-foot horizontal separation distance from any existing or proposed utility. All utilities shall be shown on the landscape plan, or other appropriate

- sheet, to confirm the separation distance.
- 15. Show the locations of all light poles on the utility plan and indicate the typical foundation depth for the pole to verify that no conflicts with utilities will occur. Light poles in a utility easement will require a License Agreement.
- 16. The plans do not show that the parcel will be split. If that does occur additional easements will be required for the utilities that are shared between the two buildings.

'Water Main

- 17. Note that a tapping sleeve, valve and well will be provided at the connection to the existing water main.
- 18. Provide a profile for all proposed water main 8-inch and larger.
- 19. All water main easements shall be 20-feet wide.
- 20. Provide the size of proposed water main and leads.
- 21. Provide information showing existing 2-inch water main lead has sufficient depth to remain under proposed detention basin.
- 22. Identify how the existing building will be served with water after the service lead under the proposed building is abandoned.
- 23. Three (3) sealed sets of revised utility plans along with the MDEQ permit application (1/07 rev.) for water main construction and the Streamlined Water Main Permit Checklist should be submitted to the Engineering Department for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable utility sheets and the standard detail sheets.

Sanitary Sewer

- 24. Per section 11-166 of the City's Code all sanitary sewers that service more than one building must be built to City standards and dedicated to the City.
 - a. Public sewers must be a minimum of 8-inches in diameter.
 - b. Provide a 20-foot wide easement for public sanitary sewer.
 - c. A MDEQ permit is required for all public sanitary sewer.
- 25. The Oakland County Water Resource Commission IWC form for non-domestic sites must be submitted prior to Final Stamping Set approval.
- 26. Provide a sanitary sewer basis of design for the development on the utility plan sheet.
- 27. Provide a note on the Utility Plan stating the sanitary lead will be buried at least 5 feet deep where under the influence of pavement.
- 28. Provide profiles for all 8-inch sanitary sewer.
- 29. Seven (7) sealed sets of revised utility plans along with the MDEQ permit application (11/07 rev.) for sanitary sewer construction and the Streamlined Sanitary Sewer Permit Certification Checklist should be submitted to the Engineering Department for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable

utility sheets and the standard detail sheets. Also, the MDEQ can be contacted for an expedited review by their office.

Storm Sewer

- 30. Provide a 0.1-foot drop in the downstream invert of all storm structures where a change in direction of 30 degrees or greater occurs.
- 31. Match the 0.80 diameter depth above invert for pipe size increases.
- 32, Storm manholes with differences in invert elevations exceeding two feet shall contain a 2-foot deep plunge pool.
- 33. Provide a four-foot deep sump and an oil/gas separator in the last storm structure prior to discharge to the storm water basin.
- 34. Label the 10-year HGL on the storm sewer profiles, and ensure the HGL remains at least 1-foot below the rim of each structure.
- 35. Provide a schedule listing the casting type and other relevant information for each proposed storm structure on the utility plan. Round castings shall be provided on all catch basins except curb inlet structures.
- 36. Show and label all roof conductors, and show where they tie into the storm sewer.

Storm Water Management Plan

- 37. Provide a sheet or sheets titled "Storm Water Management Plan" (SWMP) that complies with the Storm Water Ordinance and <u>Chapter 5 of the new Engineering Design Manual</u> (refer to the runoff coefficients, 1V:4H allowable basin slopes, etc.).
 - a. The proposed basin must be designed for the 100-year storm event for the entire development area.
- 38. The SWMP must detail the storm water system design, calculations, details, and maintenance as stated in the ordinance. The SWMP must address the discharge of storm water off-site, and evidence of its adequacy must be provided. This should be done by comparing pre- and post-development discharge rates and volumes. The area being used for this off-site discharge should be delineated and the ultimate location of discharge shown.
- 39. Provide calculations verifying the post-development runoff rate directed to the proposed receiving drainage course does not exceed the pre-development runoff rate for the site.
- 40. An adequate maintenance access route to the basin outlet structure and any other pretreatment structures shall be provided (15 feet wide, maximum slope of 1V:5H, and able to withstand the passage of heavy equipment). Verify the access route does not conflict with proposed landscaping.
- 41. Provide a 5-foot wide stone bridge allowing direct access to the standpipe from the bank of the basin during high-water conditions (i.e. stone 6-inches above high water elevation). Provide a detail and/or note as necessary.
- 42. Provide an access easement for maintenance over the storm water detention system and the pretreatment structure. Also, include an access easement to the detention area from the public road right-of-way.

- 43. Provide a drainage area map.
- 44. Provide release rate calculations for the three design storm events (first flush, bank full, 100-year).
- 45. Provide a soil boring in the vicinity of the storm water basin to determine soil conditions and to establish the high water elevation of the groundwater table.
- 46. Provide supporting calculations for the runoff coefficient determination.
- 47. A 4-foot wide safety shelf is required one-foot below the permanent water surface elevation within the basin.

Paving & Grading

- 48. Curbing and walks adjacent to the end of 17-foot stalls shall be reduced to 4-inches high, rather than the standard 6-inch height to be provided adjacent to 19-foot stalls. Provide additional details as appropriate.
- 49. The City standard straight-faced curb (MDOT C-4 curb detail) shall be provided. Revise details accordingly.
- 50. Provide additional pathway grades to demonstrate compliance with the Americans with Disabilities Act requirements.

The following must be provided at the time of Preliminary Site Plan resubmittal:

51. A letter from either the applicant or the applicant's engineer <u>must</u> be submitted with the revised PSP highlighting the changes made to the plans addressing each of the comments listed above <u>and indicating the revised sheets involved</u>.

The following must be submitted at the time of Final Site Plan submittal:

52. An Itemized construction cost estimate must be submitted to the Community Development Department at the time of Final Site Plan submittal for the determination of plan review and construction inspection fees. This estimate should only include the civil site work and not any costs associated with construction of the building or any demolition work. The cost estimate must be Itemized for each utility (water, sanitary, storm sewer), on-site paving, right-of-way paving (including proposed right-of-way), grading, and the storm water basin (basin construction, control structure, pretreatment structure and restoration).

The following must be submitted at the time of Stamping Set submittal:

- 53. A draft copy of the maintenance agreement for the storm water facilities, as outlined in the Storm Water Management Ordinance, must be submitted to the Community Development Department with the Final Site Plan. Once the form of the agreement is approved, this agreement must be approved by City Council and shall be recorded in the office of the Oakland County Register of Deeds.
- 54. A draft copy of the 20-foot wide easement for the water main to be constructed on the site must be submitted to the Community Development Department.

55. A draft copy of the 20-foot wide easement for the sanitary sewer to be constructed on the site must be submitted to the Community Development Department.

The following must be addressed prior to construction:

- 56. A pre-construction meeting shall be required prior to any site work being started. Please contact Sarah Marchioni in the Community Development Department to setup a meeting (248-347-0430).
- 57. A City of Novi Grading Permit will be required prior to any grading on the site. This permit will be issued at the pre-construction meeting. Once determined, a grading permit fee must be paid to the City Treasurer's Office.
- 58. An NPDES permit must be obtained from the MDEQ because the site is over 5 acres in size. The MDEQ requires an approved plan to be submitted with the Notice of Coverage.
- 59, A Soil Erosion Control Permit must be obtained from the City of Novi. Contact Sarah Marchioni in the Community Development Department (248-347-0430) for forms and information.
- 60. A permit for water main construction must be obtained from the MDEQ. This permit application must be submitted through the City Engineer after the water main plans have been approved.
- 61. A permit for sanitary sewer construction must be obtained from the MDEQ. This permit application must be submitted through the City Engineer after the sanitary sewer plans have been approved.
- 62. Construction Inspection Fees to be determined once the construction cost estimate is submitted must be paid prior to the pre-construction meeting.
- 63. A storm water performance guarantee, equal to 1.5 times the amount required to complete storm water management and facilities as specified in the Storm Water Management Ordinance, must be posted at the Treasurer's Office.
- 64. An incomplete site work performance guarantee for this development will be calculated (equal to 1.5 times the amount required to complete the site improvements, excluding the storm water facilities) as specified in the Performance Guarantee Ordinance. This guarantee will be posted prior to TCO, at which time it may be reduced based on percentage of construction completed.
- 65. A street sign financial guarantee in an amount to be determined (\$400 per traffic control sign proposed) must be posted at the Treasurer's Office.
- 66. Permits for the construction of each retaining wall must be obtained from the Community Development Department (248-347-0415).

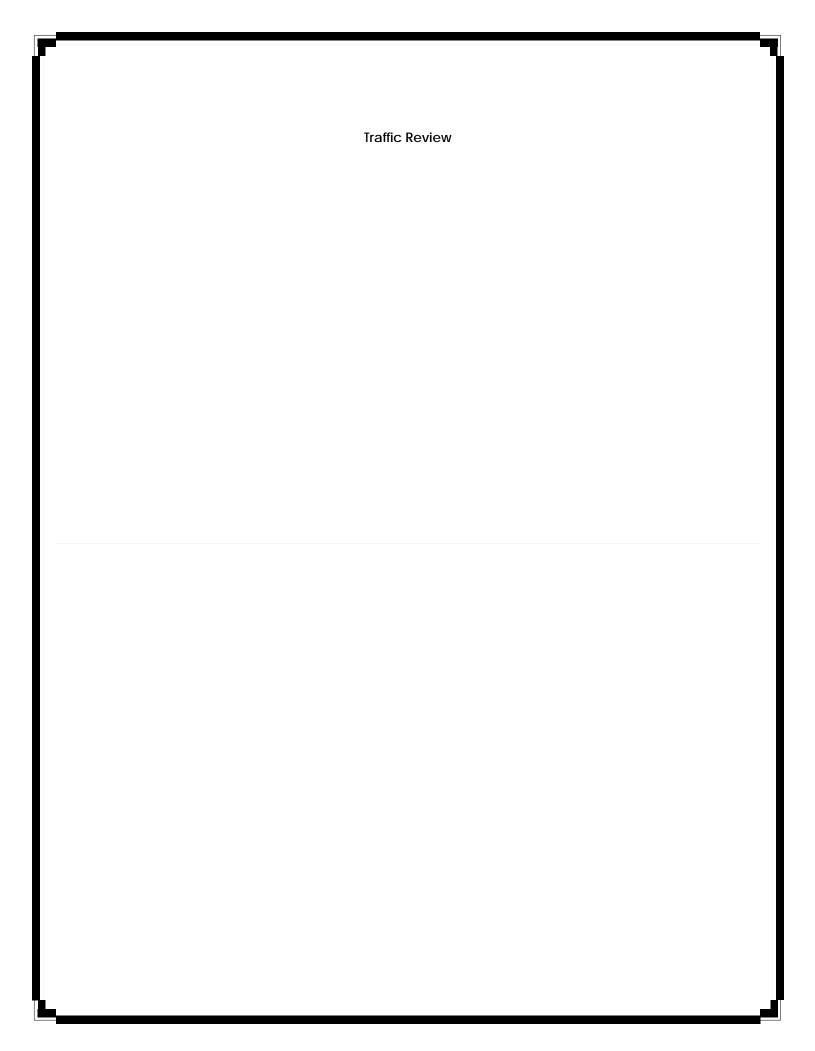
Please contact Jeremy Miller at (248) 735-5694 with any questions.

cc:

Ben Croy, Engineering Brian Coburn, Engineering

Kristen Kapelanski, Community Development Department

Michael Andrews, Water & Sewer Dept.





February 6, 2015

Barbara McBeth, AICP Deputy Director of Community Development City of Novi 45175 W. 10 Mile Road Novi, MI 48375

SUBJECT: Neptune Centre, Traffic Review for Preliminary Site Plan

JSP14-0010

Dear Ms. McBeth,

URS has completed our review of the conceptual site plan submitted for the above referenced pre-application meeting between the City and applicant. Our comments are as follows:

1. General Comments

- a. The applicant, Neptune Property Management, LLC, is proposing to build a 20,019 square foot warehouse/office building on a 2.34 acre parcel on the north side of Grand River Avenue west of Novi Road, between Lannys Road and Clark Street.
- b. The parcel is zoned I-2 General Industrial.

2. Potential Traffic Impacts

- a. The proposed development is not expected to generate traffic volumes above the City thresholds listed in Table 1 of the Site Plan and Development Manual; therefore, additional traffic impact studies are not warranted.
- **3. General Plan Comments** The site general conforms to City ordinances; however, the following additional information is requested to be able to conduct a thorough review:
 - a. The applicant should provide proposed pavement marking information in the next submittal.
 - b. The applicant should provide additional details regarding the bicycle parking facilities, including dimensions.
 - c. The applicant should note the turning radius permitted at the 90 degree turn in the northeast corner of the parking lot.
 - d. The applicant should provide the curb height of the concrete slab along the east side of the building.
 - e. The applicant should consider providing additional detail on the Preliminary Site Plan regarding where existing and new sidewalk will be located along Grand River Avenue for the entire property limits. After



existing driveways and buildings are removed and the southeast corner of the site is renovated, the sidewalk should be shown as continuous along the entire southern property line.

- **4. External Site Access and Operations** The external site access generally conforms to City ordinances; however, the applicant should consider the following comments:
 - a. The driveway geometry is in compliance.
 - b. The locations of the two proposed driveways do not meet the spacing requirements as defined in Figure IX.12 of Section 11 of the City Ordinance.
 - i. The plan indicates that there is 64' 6" between the east driveway and the adjacent property to the east's driveway, which is less than the minimum requirement of 200' for same side driveways in the Figure IX.12 of Section 11 of the City Ordinance.
 - ii. The plan does not provide dimensions between the proposed driveways and the driveways on the opposite side of Grand River Avenue; however, the spacing does not appear to meet the minimum 150' requirement as indicated in Figure IX.12 of Section 11 of the City Ordinance.
 - iii. The applicant could request a variance from the City to accommodate the denser driveway spacing for the site.
- **5. Internal Site Access and Operations** The internal site operations generally conform to City ordinances; however, the applicant should consider the following comments:
 - a. The number of parking spaces and parking space dimensions are acceptable.
 - b. The signing quantities provided on sheet SP02 is not accurate. The handicap sign assembly for the van accessible parking space (Tag 4) only includes one (1) R7-8P, when it should include one (1) R7-8 **and** one (1) R7-8P. The applicant should update the quantities displayed.
 - c. The applicant should review the end island designs throughout the site.
 - i. The outside radius for end islands should be a minimum of 15', and there is at least one instance where this is not met.
 - ii. The end islands should also be 3' shorter than the adjacent parking space depth and this does not appear to be incorporated into the design. The applicant should review and update as necessary.
 - d. The placement of the trash receptacle, while in the rear of the property, is likely to block a minimum of two (2) parking spaces when being loaded/unloaded. Section 5.4.4 of the City Zoning Ordinance states that the placement of trash receptacles, when in use, should not cut-off or diminish access to any off-street parking. The applicant should review the placement of the trash receptacle and consider adjusting as needed to comply with the ordinance.

The preliminary site plan was reviewed to the level of detail provided and additional information may be required to complete the review of traffic-related elements. URS **recommends approval** of the preliminary site plan, with the condition that the comments



stated up are adequately addressed and satisfy City ordinances or receive variances where ordinances are not met.

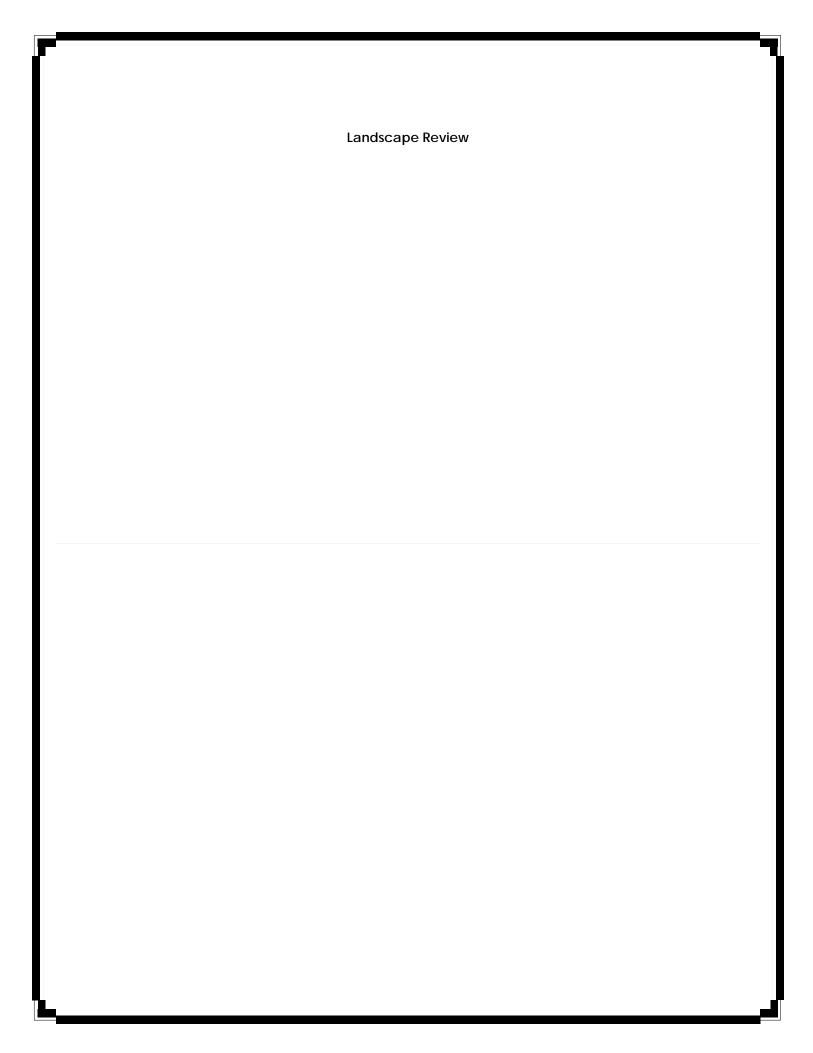
Sincerely,

URS Corporation Great Lakes

Matthew G. Klawon, PE

Manager, Traffic Engineering and ITS Engineering Services

Fax: 248.204.5901 www.urs.com





PLAN REVIEW CENTER REPORT

February 13, 2015

Prelimary Site Plan

Neptune Center JSP14-10

Review Type

Preliminary Site Plan Landscape Review

Property Characteristics

• Site Location: 44300 Grand River Ave., North side of Grand River Ave., west of

Novi Rd. (Section 15)

• Site Zoning: I-2, General Industrial

Adjoining Zoning: North, East and West: I-2; South (across Grand River Ave.): I-1

• Current Site Use: Existing Powervac

• Adjoining Uses: All Directions: Various industrial

School District: Novi

• Site Size: 3.9 acres (Development Area: 2.34 acres)

• Plan Date: 01-26-15

Recommendation

Approval of the Preliminary Site Plan is recommended. Please address the concerns noted below.

Ordinance Considerations

Adjacent to Public Rights-of-Way - Berm (Wall) & Buffer (Sec. 5.5.3.B.)

- 1. A berm along Grand River Avenue is not required.
- 2. Required greenbelt plantings have been provided.
- 3. Twenty five foot clear vision areas must be maintained at the entry.

Street Tree Requirements (Sec. 5.5.3.E)

1. One street tree is required per 55 linear feet of road frontage. This requirement has been met.

Parking Landscape (Sec. 5.5.3.C)

- 1. 1,056 sq. ft. of parking lot landscape area is required. 1,213 sq. ft. has been provided.
- 2. 14 parking lot trees are required and have been provided.

Building Foundation Landscape (Sec. 5.5.3.D)

- 1. A 4' wide landscape bed is required at the entire building foundation with the exception of access points. This required has been met.
- 2. A total of 8' x the building foundation perimeter is required as landscape square footage. In this case, 4,981 sq. ft. is required and 5,222 sq. ft. has been provided.

Plant List (LDM)

- 1. A Plant List meeting the requirements of the Ordinance and the Landscape Design Manual has been provided.
- 2. Standard cost figures per the City of Novi have been provided.

Planting Notations and Details (LDM)

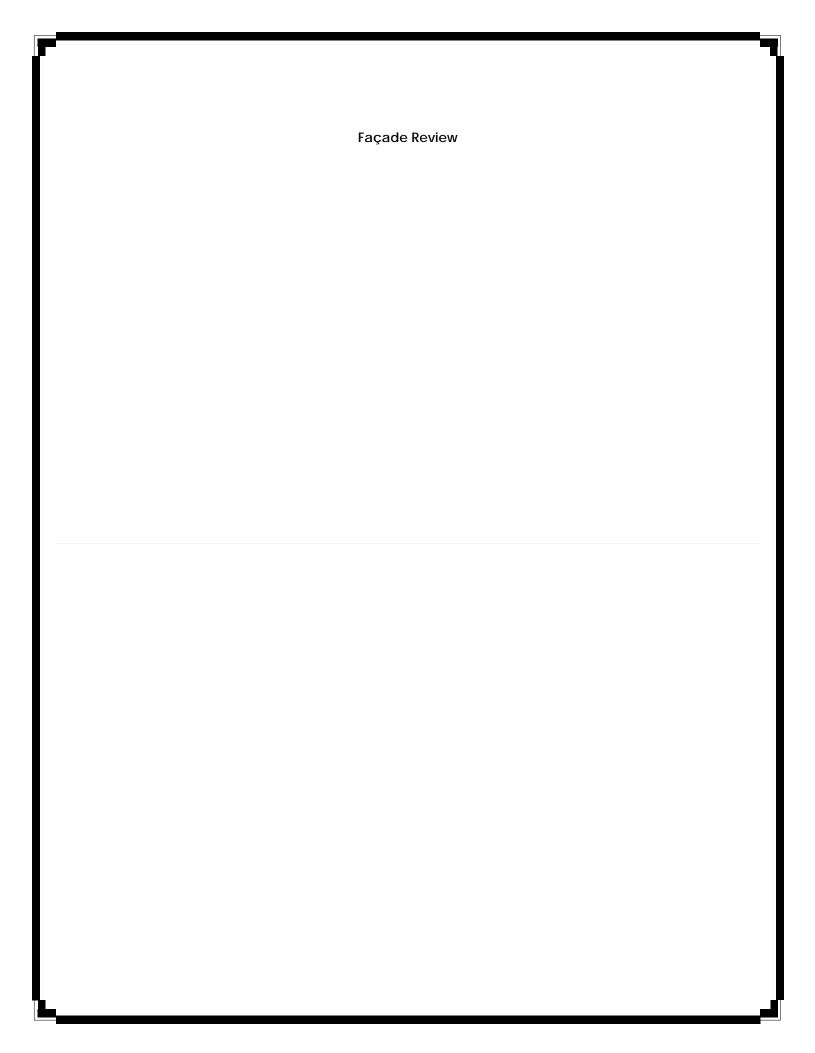
1. Planting Details and Notations meeting the requirements of the Ordinance and the Landscape Design Manual have been provided.

Irrigation (Sec. 5.5.3)

1. An Irrigation Plan must be provided upon Stamping Set submittal.

Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. This review is a summary and not intended to substitute for any Ordinance. For the landscape requirements, see the Zoning Ordinance landscape section 5.5, Landscape Design Manual and the appropriate items in the applicable zoning classification.

Reviewed by: Kristen Kapelanski, AICP







February 12, 2015

City of Novi Planning Department 45175 W. 10 Mile Rd. Novi, MI 48375-3024

Re: FACADE ORDINANCE - Preliminary Site Plan

Neptune Centre, PSP15-0010

Façade Region: 1, Zoning District: I-1

Dear Ms. McBeth;

The following is the Facade Review for Preliminary Site Plan Approval of the above referenced project based on the drawings prepared by Dorchen / Martin Architects, dated 2/26/14. The percentages of materials proposed for each façade are as shown below. Materials that are in violation of the Ordinance, if any, are shown on bold.

	South (front)	North	West	East	Façade Ordinance Section 2520 Maximum (Minimum)
Brick	0%	0%	0%	0%	100% (30% Min)
Concrete Masonty Units (CMU)	81%	100%	94%	92%	0%
EIFS	17%	0%	6%	0%	25%
Flat Metal Panels	2%	0%	0%	8%	50%

This project consists of a new building constructed primarily of "Bella Brick" as manufactured by Consumers Concrete Company. While being called "brick" by name, this product is in actuality integrally colored concrete masonry units (CMU) with a 4" x 16" face exposure. This product has received Section 9 Waivers on past projects provided it can be demonstrated that the color will be visually equivalent to natural clay brick (deep red or brown earth tones). In this case the sample board provided indicates the colors will be "Curry" and "Marquette Blend". The "Curry" color, which is used on a significant percentage of the facades, appears to be natural uncolored cement block. This color would not be deemed visually equivalent to brick and therefore would not qualify for a Section 9 Waiver. Similarly, the "Marquette Blend" appears to lack color pigment similar to natural clay brick.

Recommendation – It is our recommendation that the application is inconsistent with the intent and purpose of the Section 5.15 the Façade Ordinance. We are unable to recommend a Section 9 Waiver due to the proposed colors of the Bella Brick product. We recommend that the colors be revised to more closely match natural clay brick.

Notes to the Applicant:

- 1. It should be noted that any roof top equipment must be screened from view from all on-site and off-site vantage points, including the nearby railroad overpass, using materials consistent with the building design.
- 2. Inspections The Façade Ordinance requires inspection(s) for all projects. Materials displayed on the approved sample board will be compared to materials delivered to the site. It is the applicant's responsibility to request the inspection of each façade material at the appropriate time. Inspections may be requested using the Novi Building Department's Online Inspection Portal with the following link. Please click on "Click here to Request an Inspection" under "Contractors", then click "Façade".

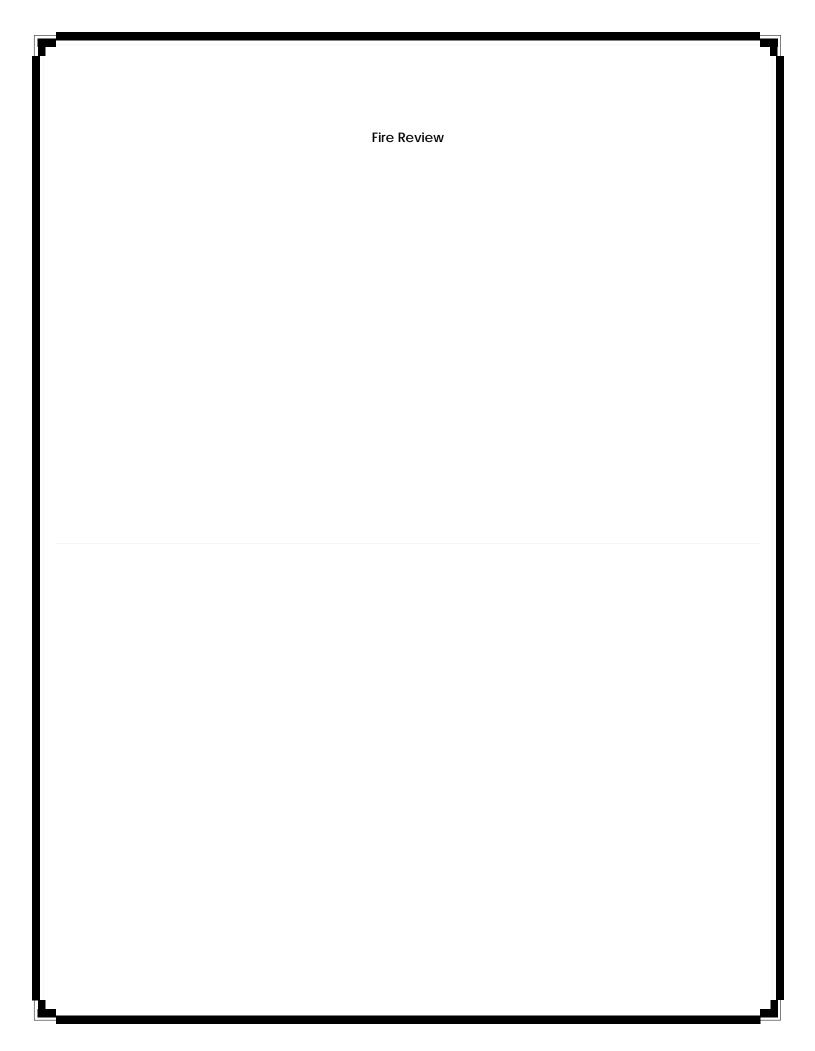
http://www.cityofnovi.org/Services/CommDev/OnlineInspectionPortal.asp.

If you have any questions regarding this project please do not hesitate to call.

Sincerely,

DRN & Associates, Architects PC

Douglas R. Necci, AIA





CITY COUNCIL

Mayor Bob Gatt

Mayor Pro Tem

Dave Staudt

Gwen Markham

Andrew Mutch

Doreen Poupard

Wayne Wrobel

Laura Marie Casey

City Manager Pete Auger

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Director of Public Safety Chief of Police

David E. Molloy

Director of EMS/Fire Operations

Jeffery R. Johnson

Assistant Chief of Police

Victor C.M. Lauria

Assistant Chief of Police

Jerrod S. Hart

February 2, 2015

TO: Barbara McBeth- Deputy Director of Community Development Kristen Kapelanski- Plan Review Center Sri Komaragiri- Plan Review Center

RE: Neptune Center

PSP#15-0010

<u>Project Description:</u> A 1 new 1 story 17,900dq. Ft. commercial building located at 44300 Grand River.

Comments:

- 1) For interior fire protection systems a separate fire protection line shall be provided in addition to a domestic service for each building. Individual shutoff valves for interior fire protection shall be by post indicator valve (P.I.V.) or by valve in well and shall be provided within a public water main easement. (D.C.S. Sec.11-68(a)(9))
- 2) No part of a commercial, industrial, or multiple residential areas shall be more than 300 feet from a hydrant. (D.C.S. Sec. 11-68 (f)(1)c.1)
- 3) Immediate access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other object for a minimum of 3 feet (914 mm). (International Fire Code)
- 4) Entrances to public and private roadways shall not have locked gates, cables or barricades that would impede fire apparatus response. (Fire Prevention Ord.)
- 5) The ability to serve at least two thousand (2,000) gallons per minute in single-family detached residential; three thousand (3,000) gallons per school areas; and at least four thousand (4,000) gallons per minute in office, industrial and shopping centers is essential. (D.C.S. Sec.11-68(a))

Recommendation:

 Show size of water main servicing the fire protection and hydrants proposed for the building. Provide location and size of fire protection lead to the building and show on all plans.

Novi Public Safety Administration 45125 W. Ten Mile Road Novi, Michigan 48375 248.348.7100 248.347.0590 fax

cityofnovi.org

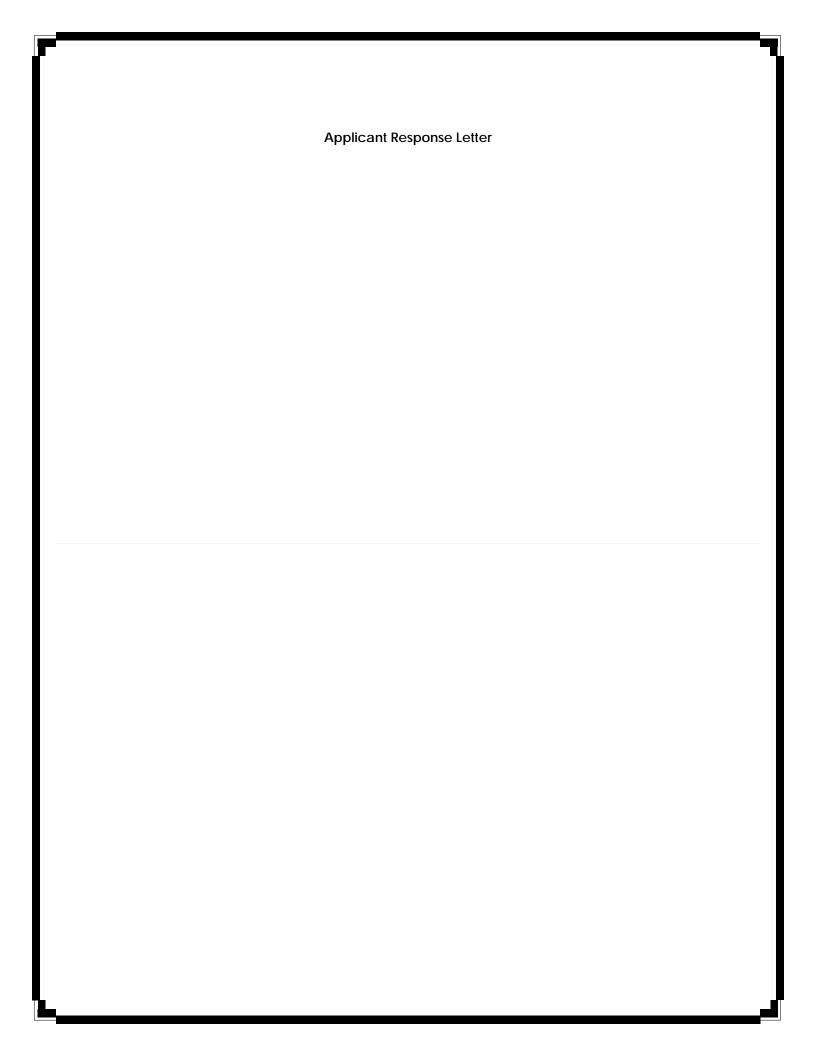
- 2) Additional hydrant is required for the West entrance to the building.
- 3) Plans shows landscaping adjacent to the FDC.
- 4) Proposed gates will require approved locking devices.
- 5) Additional hydrants required.

Approved with the above conditions.

Sincerely,

Joseph Shelton- Fire Marshal City of Novi – Fire Dept.

cc: file





29895 Greenfield Road Suite 107 Southfield, Michigan 48076 248.557.1062

Fax: 248.557.1231 Cell: 248.224.3714

E-mail: fmartin@dorchenmartin.com http://www.dorchenmartin.com/

February 18, 2015

Ms. Kristen Kapelanski, AICP | Planner City of Novi 45175 W. Ten Mile Road Novi, MI 48375

Re: Neptune Centre

44300 Grand River D/MA File No: 13041

Novi Planning No: PSP15-0010 JSP14-10

Dear Kristen:

Per your request, please consider this letter our response(s) to the review letters that were recently emailed to my office relative to the Neptune Center Preliminary Site Plan Review request. Those review letters were: Façade Ordinance, Engineering, Planning and Lighting, Traffic, Fire Department and Landscape. As described, we will make the appropriate changes to our plan sets and address the review comments in this letter. Included with this response are pdf's of the original reviewed drawing submittal, Nowak & Fraus response letter, colored site plan and colored perspective concept sketches.

FAÇADE ORDINANCE

Recommendation – It is our recommendation that the application is inconsistent with the intent and
purpose of the Section 5.15 the Façade Ordinance. We are unable to recommend a Section 9 Waiver
due to the proposed colors of the BellaBrik product. We recommend that the colors be revised to
more closely match natural clay brick.

We have made contact with Doug Necci, AIA, of DRN & Associates, Architects, PC, relative to his review and now have a better understanding of his concerns. It appears that the physical samples (size and color range) did not sufficiently convey the true material colors and ranges that are intended. It was clearly understood that we are very comfortable working with Doug Necci to gain approval of the two selected BellaBrik colors and blends for the final site plan submission. New samples and photographs of existing installations will be acquired and submitted to Doug for review and approval.

ENGINEERING

The Preliminary Site Plan does not meet the general requirements of Chapter 11 of the Code of Ordinances, the Storm Water Management Ordinance and/or the Engineering Design Manual. The following items must be addressed prior to resubmittal:

Ms. Kristen Kapelanski, AICP | Planner

Neptune Centre

Novi Planning No: PSP15-0010 JSP14-10

February 18, 2015

Page 2

- 1. The applicant must provide additional information on the proposed water main.
- 2. Per section 11-166 of the City's Code, all sanitary sewers that service more than one building must be built to City standards and dedicated to the City. The proposed sanitary service lead for the new building must either connect directly to a public sanitary sewer, or a sanitary sewer extension could be constructed on-site to provide sewer leads to each building.
- 3. The applicant must provide additional information and calculations for the proposed storm water detention pond.

Based upon the attached response letter from Nowak and Fraus, it has come to our attention that Engineering has approved the response and has recommended approval - see attached response from Nowak & Fraus, Civil Engineers. In addition, the remaining engineering comments will he addressed on final site plan approval submittal.

PLANNING

1. Required Parking Spaces: The applicant should indicate the number of employees in the largest working shift in their response letter.

There are 14 employees on the largest shift – 12 in the office and 2 in the shop area along with 22 on the road.

2. The applicant should address the items identified in the lighting review chart as part of the final site plan. The applicant should add additional lighting to properly light the building entrances.

The items in the lighting review chart will be addressed in the final site plan submittal. Additionally, the lighting levels at the building entrances will be increased to meet the minimum design levels and will be addressed in the final site plan submittal.

3. Bicycle Parking: The applicant should provide the required bicycle parking spaces along with a detail of the bicycle parking layout.

Bicycle parking was indicated on the SP02 Site plan adjacent to the parking area at the southeast corner of the building. Details will be addressed in the final site plan submittal.

4. Economic Impact: The applicant should provide the estimated total cost of proposed building and site improvements as well as the number of jobs anticipated both during and after construction as part of their response letter.

The Owner anticipates a total project cost of approximately \$1,950,000. In addition, the new building should facilitate their continued growth by adding 3 new employees per year for the next few years.

5. Parcel Split: The applicant must create this parcel combination prior to Stamping Set approval. Plans will not e stamped until the parcel is created.

The Owner and applicant will secure the proper combination documents prior to stamping set

Ms. Kristen Kapelanski, AICP | Planner

Neptune Centre

Novi Planning No: PSP15-0010 JSP14-10

February 18, 2015

Page 3

approval.

LANDSCAPE

Irrigation (Sec. 5.5.3)

1. An Irrigation Plan must be provided upon Stamping Set submittal.

An Irrigation Plan will be provided for final site plan approval.

TRAFFIC

The preliminary site plan was reviewed to the level of detail provided and additional information may be required to complete the review of traffic-related elements. URS recommends approval of the preliminary site plan, with the condition that the comments stated are adequately addressed and satisfy City ordinances or receive variances where ordinances are not met.

Agreed and Understood

FIRE DEPARTMENT

1. Show size of water main servicing the fire protection and hydrants proposed for the building. Provide location and size of fire protection lead to the building and show on all plans.

This information will be provided on final site plan submittal.

2. Additional hydrant is required for the West entrance to the building.

Civil engineer will review and provide on final site plan submittal.

3. Plans show landscaping adjacent to the FDC.

Landscaping will be adjusted so that the FDC is not blocked or compromised.

4. Proposed gates will require approved locking devices.

Knox boxes will be provided for gate access.

5. Additional hydrants required.

Civil engineer will review and provide on final site plan submittal.

Ms. Kristen Kapelanski, AICP | Planner

Neptune Centre

Novi Planning No: PSP15-0010 JSP14-10

February 18, 2015

Page 4

If I can be of any further assistance in this matter, do not hesitate to contact me at my office.

Sincerely,

Frank Z. Martin, AIA, NCARB Dorchen/Martin Associates, Inc.

FZM/

PC: Dave Janks, Neptune Property Management

Enclosures

VOICE: 248.332.7931

FAX: 248.332.8257



February 18, 2015

Mr. Jeremy Miller City of Novi Engineering

Re: Neptune Centre Grand River Ave. Novi, MI

Dear Mr. Miller,

Below are our responses to the Preliminary Site Plan comments from your review letter dated 02-11-15.

- 1. Additional information regarding the proposed water main: The water main will be a 8" DI, CL54 pipe within a 20' wide easement (will be revised currently shown as 12'). It will be tapped off of the existing 18" water main at the southeast corner of the site with a tapping sleeve & valve in well. Currently one fire hydrant is shown on the drawings, however, the fire department has requested an additional fire hydrant be added. We will add the additional fire hydrant and make sure that the required coverage is achieved.
- 2. Sanitary sewer service: The sanitary service shall be revised such that each building (existing and proposed) has its own private sewer lead that connects to a public main. A new public sewer main will not be proposed.
- 3. Detention Calculations: Attached please find a summary of the detention calculations for this project. The pond has been sized in accordance with the City design standards.

Please let me know if you need any additional information.

Thank you.

Sincerely,

Patrick J/Williams, P.E. Nowak & Fraus Engineers

DRAINAGE AREAS RUNOFF COEFFICIENT DETERMINATION

C = 0.35 Lawn Surface

C = 0.95 Building & Paved Surface

AREA'A'

Lawn Surface: 0.98 acres
Paved / Building Surface: 1.36 acres
Total Acreage: 2.34 acres

C = 0.70

DETENTION CALCULATIONS (100) YEAR STORM EVENT

CONTRIBUTING ACREAGE: 2.34 ACRES

Qa ALLOWABLE OUTFLOW: 0.15 CFS/ACRE

C RUNOFF COEFFICIENT: 0.70 IMPERVIOUSNESS

Qo MAXIMUM ALLOWABLE OUTFLOW: 0.214 CFS/(ACRE*IMPER.)

Ts STORAGE TIME (100 YEAR): 194.374 MINUTES

Vs STORAGE VOLUME: 12,953.59 CF/(ACRE*IMPER.)

Vt TOTAL VOLUME: 21,217.98 CUBIC FEET

VOLUME REQUIRED 21,218 CUBIC FEET

Required Formulas:

Qo = Qa / (Area x C) $Vs = (16,500 \times T)/(T + 25) - (40 \times Qo \times T)$

 $T = -25 + (10,312.5 / Qo)^0.5$ $Vt = Vs \times A \times C$

VOLUME PROVIDED: 21,800 CUBIC FEET



February 18, 2015

Mr. Jeremy Miller City of Novi Engineering

Re: Neptune Centre Grand River Ave.

Novi, MI

Dear Mr. Miller,

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Sincerely,

Patrick J/Williams, P.E. Nowak & Fraus Engineers

DRAINAGE AREAS RUNOFF COEFFICIENT DETERMINATION

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AREA 'A'

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CONTRIBUTING ACREAGE: 2.34 ACRES

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VOLUME PROVIDED: 21,800 CUBIC FEET