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SUMMARY OF STORMWATER MANAGEMENT PLAN (SWMP)

The Stormwater Management Plan (SWMP) will include the construction activities associated with the Synergy Village project. Construction activities will the construction of a 2-story multi-unit building at the northeast portion of the site, three 2-unit single family attached buildings in the southeast portion of the site, and a single family house with a garage south of the existing detention pond. An existing detention pond will be modified and a new detention facility with forebay, trickle channel, and outlet structure will be constructed in the southwest corner of the site. Landscaping will be provided on the site as shown on the landscaping plan. *OK*

The SWMP identifies and describes the stormwater best management practices (BMP's) that will be implemented to minimize the potential release of sediment and chemicals into the atmosphere, ground, and/or water. During the project development, any existing perimeter landscaping shall be protected, runoff shall be slowed down, soil erosion shall be prevented or minimized due to the construction activities, and to prevent or minimize sediment from earth disturbances from reaching the receiving or surface waters.. The plan will provide incremental phased seeding and mulching and the scheduling and implementation of site stabilization plan.

PROJECT LOCATION

*US 36 BIKE N RIDE STRUCTURES, 8010 TRANSIT WAY
BROOMFIELD, CO 80021*

The site for the SYNERGY VILLAGE, 3200 SOUTH FEDERAL BOULEVARD project is located at 3200 South Federal Boulevard in the City and County of Denver, Colorado. The site is between West Floyd Avenue on the south, West Dartmouth Avenue on the north, South Federal Boulevard on the west, and South Decatur Street on the east.

The site is in the SE Quarter of Section 32, Township 4 South, Range 68 West of the Sixth Principal, City and County of Denver, Colorado. The site is approximately located at Latitude N39°39'30", Longitude W105°01'28", and shown on Section Map #SW_081.

The project is situated on the North 58 feet of Lot 26 and Lots 27 through 29, inclusive, Block 5, except the west 15 feet thereof, the East 76 feet of Lot 30, Block 5, Boulevard Gardens Annex, City and County of Denver, State of Colorado. Except the property known as: The West 197.0 feet of Lot 29, and the West 197.0 feet of the North 26.2 feet Lot 28, Block 5, Boulevard Gardens Annex, City and County of Denver, State of Colorado.

US 36 BIKE N RIDE SHELTERS

Synergy Village is bordered on the west by South Federal Boulevard with an existing multi-family complex and a vacant field west of South Federal Boulevard; on the north by existing townhome and apartment complexes; on the east along South Decatur Street with existing single-family residences; and on the south by a vacant lot with an existing apartment complex with parking beyond.

PERMIT

The project is certified to discharge under City and County of Denver Municipal Stormwater Discharge Permit CDPS Permit No. . The certification to Discharge authorizes the developer of Synergy Village, during the construction of the project, to discharge stormwater from the project identified as Synergy Village, 200 South Federal Boulevard. The total area of the site that is subject to disturbance is approximately 1.282 acres. The Certification is effective on 4/10/23 and expires on 4/9/24. The anticipated construction start date is 5-1-23, with final stabilization occurring by 8-18-23.

Phone Number: (303) 722-3267 FAX Number:
Project Engineer: Robert D. Thomas Contact: Michael S. Chessnoe
Email: chessnoedenver@comcast.net

E. SITE SUPERVISOR (if known)

Company Name: Nicholas Construction, Inc.

Mailing Address: P.O. Box 998

City, State, Zip Code: Littleton, CO 80160

Phone Number: (720) 299-3717 FAX Number: ()None

Name of Site Supervisor: Tyler Loren Funk

Email: loren.funk@gmail.com

F. TYPE OF CONSTRUCTION

Check the appropriate description(s) or provide a brief description that indicates the general nature of the construction activities. A full description of activities must be included in the Stormwater Management Plan. (see Section G below)

Single Family Residential Development

Multi-Family Residential Development

Commercial Development

Oil and Gas Production and/or Exploration (including pad sites and associated infrastructure)

Highway/Road Development (not including roadways associated with commercial or residential development)

Other, Describe:

G. SITE DESCRIPTION

1. Acreage

a. Total Site Acreage: 1.282 ACRES

b. Acreage Subject to Disturbance: 1.282 ACRES

c. Acreage Determination (Public Utility Projects): Site Survey

Area bounded by predefined construction limits: YES

Calculations shall include all areas proposed for contractor laydown, materials storage, equipment storage, areas where equipment repair and fueling will occur, ingress, and egress (include haul roads and borrow pits.)

2. Site Conditions:

a. Historical Land Use: (may be for partial site)

Known Landfill site: YES NO

Has any of the following activities occurred on site:

Metal Refining YES NO

Petroleum Refining YES NO

Petroleum Storage YES NO

Chemical Manufacturing YES NO

Pesticide/Fertilizer Manufacture/Storage YES NO

Rail Yard YES NO

If the response to any of the above is YES, Please describe:

N/A

b. Potential Pollutants at site: Include below a discussion addressing all potential pollutants; at a minimum, each of the following sources and activities shall be evaluated for the potential to contribute pollutants to stormwater discharges:

1. all disturbed and stored soils
2. vehicle tracking of sediments;
3. management of contaminated soils;
4. loading and unloading operations;
5. outdoor storage activities (building materials, fertilizers, chemicals etc.);
6. vehicle and equipment maintenance and fueling;
7. significant dust or particulate generating processes;
8. routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, etc.;
9. on-site waste management practices (waste piles, liquid wastes, dumpsters, etc.);
10. concrete truck/equipment washing;
11. dedicated asphalt and concrete batch plants;
12. non-industrial waste sources such as worker trash and portable toilets; and
13. other areas or procedures where potential spills can occur.

The above are all activities that can contribute to potential pollutants at the site. Potential pollutants can be minimized by using BMP.s for Good Housekeeping Practices; Vehicle Tracking Controls; Silt Fences; Erosion/Sediment Control Logs; Containment areas for hazardous materials; fuels; Water Trucks; Street Sweeping; Temporary Sediment Basins; Seeding and Mulching as described in Volume 3 of the Urban Drainage and Flood Control District BMP.s.

c. Possible Site Contamination: Is the site part of any of the following:

Known Denver Radium Site	YES	NO	<input checked="" type="checkbox"/>
Known Denver LUST Site	YES	NO	<input checked="" type="checkbox"/>
Known Superfund Site	YES	NO	<input checked="" type="checkbox"/>
Known CERCLA Site	YES	NO	<input checked="" type="checkbox"/>
Known RCRA Site	YES	NO	<input checked="" type="checkbox"/>

If the response to any of the preceding is YES, Please describe:
N/A

Describe any other known site contamination: The site does not have any contaminations that are known.

c. Current Land Use:

Describe existing use: The current land is VACANT with an asphalt drive, parking area, and a portion of an existing detention pond.

Are there any building/structures on site? YES NO

d. Existing and Proposed Topography (minimum 2 foot contours)

Description:

0.32

The site contains 1.282 acres. The existing site is vacant with underground utilities (water, sanitary sewer, and storm sewers) in place. There is an existing detention pond that is shared with the townhomes to the north. The detention pond will be modified as indicated below and on the construction plans. There is a concrete block retaining wall along a portion of the north and east property lines. An asphalt drive and parking spaces are located on the northeastern portion of the site adjacent to the east side of the townhomes. The property has no landscaping (except for the detention pond) and the site is covered with native grasses and weeds. The site slopes from the north to south at approximately 4% and from the east to west with slopes averaging 5.0%. There are no major drainageways or drainage facilities on site except as noted above.

Highest Elevation: 5463 Lowest Elevation: 5441

Steepest Slope: 4:1 (Detention Ponds) Average Slope: 5.2%

Direction The site mainly has slopes northeast to southeast

e. Vegetation:

Identify the types of vegetation found on-site: The site currently is covered with native grasses and weeds. The existing detention pond is grass covered.

Estimate the existing density of vegetation: low density

Submittal of Photographs is not required but highly recommended

f. Drainage:

Identify all adjacent surface water flows (run-on) that may impact and/or runoff from the subject site: There is no runoff entering the site from adjacent properties except at the northeast corner of the site. Runoff from the adjacent townhomes is conveyed to the existing shared detention pond.

Identify the State Receiving Waters: South Platte River

Describe the flow routing from the site to the Receiving Waters: Routing is via overland flows and storm sewers to the South Platte River.

Are there any springs or seeps located on-site? YES NO

Are there any defined drainage channels on-site? YES NO

Does the site fall within a Regulatory Floodplain? YES NO

If the answer is YES, a Floodplain Development Permit issued by the Public Works Department may be required.

g. Wetlands:

Define the dimensions/surface areas for each identified wetland relative to the site.

Identify all on-site wetlands/wetlands channels:

1. N/A

2. N/A

3. N/A

Tributary or adjacent Wetlands Areas

Upstream of the site? YES NO

Downstream of the site? YES NO

Will the proposed construction work impact any of the on-site wetland areas?

YES NO

If the answer is YES, attach copies of correspondence with the State of Colorado and U.S. Army Corps of Engineers concerning permits and approvals for the work.

h. Soils:

Identify the predominant Hydrologic Soil Group found on site.

A B C D

What is the runoff coefficient for the undeveloped site? NA

Describe the soil texture found on-site. The on-site soil consists of Ascalon sandy loam, 5 to 9 percent slopes (74% of site) and Nunn loam, 0 to 3 percent slopes (26% of site).

Is there any outcropping of bedrock on site? YES NO x

Will grading or excavation on site reach bedrock? YES NO x

If YES, what is the depth of the bedrock? N/A

Will grading or excavation penetrate the Water Table? YES NO x

If YES, what is the depth of the Water Table? N/A

i. Erosion Potential:

Provide estimates of the potential annual soil loss from the site for the following conditions:

Erosion by water from an unprotected site 2.96 tons per acre per year.

Erosion by water from a protected site 1.48 tons per acre per year.

Identify the procedures/formulas used to produce these estimates.

If the Universal Soil Loss Equation (USLE) has been used, provide the values used for the following:

R (Annual Erosion Index) 40.0

K (Soil Erodibility Factor) 0.37

LS (Length/percent Slope Factor) 0.20 (UNPROTECTED), 0.10 (PROTECTED)

C (Soil Cover Factor) 1.0

Provide estimates of the potential annual soil loss from the site for the following conditions:

Erosion by wind from an unprotected site N/A tons per acre per year.

Erosion by wind from a protected site N/A tons per acre per year

Identify the procedures/formulas used to produce these estimates.

A=R*K*LS*C*P

Protected site: calculations shall be based on the BMPs proposed for use on the site. Protected site: calculations shall be based on the measures proposed for use on the site

H. PROJECT DESCRIPTION-CONSTRUCTION ACTIVITIES

1. Proposed Construction Activities

Identify which of the following activities will occur during development of the site:

a. Clearing and Grubbing YES x NO

b. Mass Overlot Grading YES x NO

c. Cut Operations YES x NO

If YES, estimate volume of cut (cubic yards) 1912' 204

d. Fill Operations YES x NO

If YES, estimate volume of fill (cubic yards)	597	
e. Building Demolition	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	X
f. Foundation Excavation	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	75cy
g. Utility Construction	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	184cy
h. Street Construction and Paving	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	X
i. Building Construction	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
j. Parking Lot Construction/Paving	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	X
k. Landscaping	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	

Will Private Storm and Sanitary Sewer systems be constructed? YES NO
 Will Public Storm and Sanitary Sewer systems be constructed? YES NO

WMD for each project: 2014-SSPR-2000078

Only private sanitary sewer services are being constructed.

If sewers are private or being constructed by a governmental agency other than Public Works identify the PR, M, or O Project Numbers assigned* by Public Works. N/A

*if Public Works Project Numbers have not been assigned but will be in the future, please indicate as "Not Assigned."

2. Construction Scheduling (Corresponds with Construction Phasing below)

a. Site Preparation/Grading Operations

Proposed Start Date: April 2017 May 1, 2023

Proposed Completion Date: December 2018 August 18, 23

b. Utility/Infrastructure/Building Construction

i. Utilities:

Proposed Start Date: April 2017 May 2023

Proposed Completion Date: September 2017 Aug 18, 2023

ii. Building Construction:

Proposed Start Date: April 2017

Proposed Completion Date: April 2018

iii. Landscaping/Site Stabilization:

Proposed Start Date: March 2018

Proposed Completion Date: June 2018

Use
dates
from
Above

3. Construction Phasing

BROOMFIELD
 Denver recognizes 3 basic phases for all construction sites as outline below.
 (Note: A map or drawing for each phase is required, showing required BMPs for that phase)

Address the installation and maintenance of all proposed erosion control measures, sediment/pollutant control measures, and site stabilization measures for each phase. Add additional sheets to the worksheet if needed.)

a. Site Preparation/Grading

- i. Describe the types and placements of proposed BMPs for use during clearing, grubbing, demolition, and grading operations.

Define the work area and place construction fencing prior to the start of demolition and clearing activities. Identify and control construction access points, haul off dumpsters, construction trailers, storage areas, and portable toilet facilities shall be determined and controlled. Disturbance to existing vegetation shall be minimized and vehicle tracking pads for disturbed access points shall be provided. Perimeter controls (such as silt fences, sediment control logs, inlet protection and curb socks) shall be installed around and downstream of the construction.

Define the limits of the clearing and grubbing and install silt fence or sediment control logs beyond the toe of future slopes as defined on the grading plan. Soil stockpile areas shall be designated and stockpile control measures (silt fences, etc.) shall be placed beyond the slope. Inlet protection and curb socks shall be placed at all on-site and off-site inlets downstream of the construction. A temporary sediment basin shall be constructed at the southwest corner of the site. Grading can commence, upon inspection and acceptance of the initial erosion and sediment control measures based on the requirements of the approved erosion and sediment control plan and the City and County of Denver Wastewater Division.

As grading and building construction progresses, provide additional sediment controls as needed or as shown on the erosion and sediment control plan. The additional controls consists of sediment control logs or check dams in the flowlines of newly graded swales, compacted earthen berms, silt fences at the down slopes of newly disturbed areas, street sweeping and surface roughening and/or temporary seeding for areas that are to be open until landscaping or hard surface is completed.

- ii. Describe all measures proposed for interim site stabilization.

Measures for the interim site are the same as for the initial site grading phase with additional sediment controls as shown on the interim plan.

- iii. Describe the inspection and maintenance schedule proposed for BMPs on-site.

A designated responsible party shall conduct a thorough stormwater management inspection be performed every 7 calendar days and after any precipitation event that has the potential to cause surface erosion. Sites with landscaping in place sufficient to deter erosion that have not yet achieved final stabilization may petition the City of Denver to grant an alternative inspection schedule while awaiting final stabilization.

All BMPs shall be repaired, if necessary, with 24 hours of the

inspection report. All BMPs shall be maintained in good working order.

b. Utility/Infrastructure/Building Construction

- i. Describe the types and placements of proposed BMPs for use during utility construction, roadway construction, building construction and paving operations.

Prior to utility, infrastructure, and building construction, designate the location for trash and recycle containers, vehicle and equipment refueling, material storage, and concrete washout. Stored materials shall be elevated off of the ground. Materials in containers shall be stored in a covered area. Fueling, storage, and trash/recycle container areas shall be protected with a minimum one-foot high containment berm with a total volumetric capacity of at least twice that of the materials being stored in order to prevent migration of any spills.

All previous BMPs shall be maintained for the installation of underground utilities. Silt fencing, curb socks, and/or other BMPs shall be provided downstream of the area of disturbance when trenching for utilities is outside of the protected area. Temporary spoil piles from trenching shall be up-grade of the trench and the trench backfilled immediately after inspection.

Excess material shall be salvaged when and if possible with the waste material being disposed of in a legal and proper manner. Empty containers that held hazardous materials such as solvents, lubricants, paints, fuel, etc., shall be disposed of in a proper and legal manner.

During the installation of the new storm inlet, outlet and inlet protection shall be provided. Sediment control measures shall be in place and functioning properly during flushing and testing of utilities.

The disturbed areas shall be paved, landscaped, and /or reseeded and crimp mulched per the contract documents after the completion of construction. All erosion control BMPs shall remain in place until final stabilization has been achieved.

- ii. Describe all measures proposed for interim site stabilization.
Measures for the interim site are the same as for the initial site grading phase and those stated above.
- iii. Describe the inspection and maintenance schedule proposed for BMPs on-site.
The inspection schedule for the interim phase will be the same as for the initial phase. See above.

c. Permanent Site Stabilization/Landscaping

- i. Describe the types and placements of BMPs proposed for use during site stabilization and landscaping, as well as describing all permanent water quality enhancement facilities.

Final stabilization will be when the private drives and parking lot is paved, building construction is complete and final landscaping is in place and has reached the point of good growth. Final landscaping will consist of the installation of trees, shrubs, mulched areas, and sod.
- ii. Describe all measures proposed for final site stabilization.

Measures for the final site stabilization are the same as for the interim site phase as stated above.
- iii. Describe the inspection and maintenance schedule proposed for BMPs on-site.

The inspection schedule for the final site stabilization are the same as for the interim site phase. See above.
- iv. Identify any annual grasses proposed for use in stabilizing the site.

N/A – final stabilization will be obtained through pavement, hard surface, and landscaping (trees, shrubs, landscape mulch, and sod).
- v. List the perennial grasses seed mix proposed for site stabilization

See Landscape Plan – final stabilization will be obtained through pavement, hard surface, and landscaping (trees, shrubs, landscape mulch, and sod).
- vi. Identify the estimated date for seeding

N/A – sod will be used (see Landscape Plan).

I. Required Best Management Practices (BMP)

As listed, under Section 4 of Information Guide document

1. Vehicle Tracking Control (See Erosion Control Detail)

Vehicle tracking control may consist of an excavated area with a geotextile liner and gravel, metal grate or asphalt/concrete “rumble strip”. Tracking control is designed to cause soil to vibrate off equipment and vehicles as they transition from disturbed soils to paved areas. The vehicle tracking control will remain in place until access to the areas used by the control are stabilized or no longer needed. All appropriate points of ingress and egress, where traffic transitions from a stabilized road surface (e.g. gravel or pavement) to disturbed soil, will have vehicle tracking control installed. Tracking control may be moved or eliminated as on-site conditions and activities change. Tracking control will be inspected for depth of gravel/rock, presence of excess soil, proper usage and the overall general condition. The most common maintenance items include the removal of accumulated soil and addition of gravel/rock.

2. Inlet Protection (See Erosion Control Detail)

Inlet protection consists of permeable barriers installed around an inlet to filter runoff and remove sediment prior to entering a storm drain inlet. Inlet protection can be from rock socks,

sediment control logs, silt fence, block and rock socks, or other materials approved by the City. Area inlets can also be protected by over excavating around the inlet to form a sediment trap. Install protection at storm sewer inlets that are operable during construction. The potential for tracked-out sediment or temporary stockpile areas contributing sediment to inlets should be considered when determining which inlets to protect.

3. **Site Stabilization (Sediment Control Narrative) (See Attached Narrative)**
4. **Spill Prevention/Containment (Sediment Control Narrative) - (See Attached Narrative)**
5. **Chute Washout Containment (See Erosion Control Detail)**

It is anticipated that a small concrete washout will be needed for this project. The designated washout facility or facilities will be installed on site and the locations added to the site plan. No concrete waste will be discharged directly into the ground without a containment feature. The hardened concrete and/or excess wash water will be hauled away by an approved contractor to a designated facility designed to receive such materials. The concrete washout area will have approved signage installed at its location. Concrete washout water will not be discharged to state surface waters or to storm sewer systems. If unlined pits are used to contain concrete washout water, the following management practices must be implemented:

The washout site must be temporary (less than 1 year). The washout site may not be located in an area where shallow groundwater may be present, such as near natural drainages, springs, or wetlands. Upon termination of use of the washout site, accumulated solid waste, including concrete waste and any contaminated soils, must be removed from the site to prevent on-site disposal of solid waste.

6. **Street Sweeping (See Standard Note #10)**

Soils deposited on paved surfaces will be swept or cleaned as needed to reduce the potential of sediment transport and tracking. Sweeping operations consist of the scraping large quantities of sediment from pavement and/or sweeping, via hand or mechanical means to remove as much deposited sediment as possible. Sweeping will occur in all paved areas where there is the potential for material to be tracked onto the paved surface. All streets within and immediately surrounding a construction site will be cleaned of earth material on a weekly basis (update this as needed based on local requirements). Streets will be cleaned by scraping and sweeping the dirt off the paved roadways. Scraped or swept material will not be deposited in the storm sewer. Sweeping and vacuuming may not be effective when soil is wet or muddy.

7. **Perimeter Control (See Erosion Control Details)**

Silt fence

Silt fence consists of geotextile fabric installed with at least six inches of the fabric entrenched into the soil attached to wooden stakes on the down-gradient side. Wire-backed fence may be used or additional stakes or lathe may be added on the up-gradient side for strengthening the fence around corners or in high wind conditions. Silt fence provides sediment control by reducing water velocity and ponding water to facilitate the deposition of sediment on the up-gradient side of the fence. Silt fence applications include, but are not limited to: project perimeter control, secondary containment, back of curb protection and containment for any disturbed or staging area. Silt fence will be inspected regularly for sediment accumulation one-half the height of the fence, tear or holes in the fabric, broken stakes, gaps in the fabric or areas where the fabric needs to be re-attached to the wooden stakes. Maintenance includes repairing the items noted or replacing the fence as needed.

Sediment Control Log (Erosion Control Log)

A sediment control log consists of a net or geotextile fabric filled with straw, excelsior, wood mulch or other fillers. Sediment control log applications include, but are not limited to, slope stabilization, check dams in swales, back of curb protection and temporary secondary containment for stock piles, materials storage, or masonry. Sediment control logs reduce water velocity allowing sediment to accumulate on the up-gradient side of the sediment control log. The basic installation for a net wrapped sediment control log is to prepare a trench approximately three inches deep, secure the wattle in the trench using a stake or landscape pin, and backfill on the up-gradient side. Sediment control logs should be installed based on manufacturers directions. Sediment control logs should be inspected for proper installation, structural integrity and sediment accumulation. A sediment control log that has been flattened out of round may not need to be replaced if they remain sufficiently sound to function appropriately on the up-gradient side of the sediment control log.

8. Portable Toilets

Portable sanitary facilities will be provided in a convenient, level location away from traffic areas at least three feet from curb flowlines and paved surfaces, storm drains, or retention areas. A licensed company will be hired to maintain and clean the units, inspect for any deficiencies, and keep the units in good working order. Portable sanitary facilities will be adequately anchored to prevent tipping over. The construction contractor will be responsible for ensuring that the units are properly used and maintained.

J. Maintenance, Inspections & Record Keeping (See Standard Note #7)

A designated responsible party shall conduct a thorough stormwater management inspection be performed every 7 calendar days and after any precipitation event that has the potential to cause surface erosion. Sites with landscaping in place sufficient to deter erosion that have not yet achieved final stabilization may petition the City of Denver to grant an alternative inspection schedule while awaiting final stabilization.

All BMPs shall be repaired, if necessary, with 24 hours of the inspection report. All BMPs shall be maintained in good working order.

(See the Appendix for Narrative)

K. Post Construction Permanent Water Quality

Identify permanent water quality BMPs proposed for site sediment control:

1.	Grass Buffer	YES	NO	x
2.	Grass Swale	YES	NO	x
3.	Modular Block Porous Pavement	YES	NO	x
4.	Porous Pavement Detention	YES	NO	x
5.	Porous Landscape Detention	YES	NO	x
6.	Extended Detention Basin	YES	NO	x
7.	Sand Filter Extended Detention Basin	YES	NO	x
8.	Constructed Wetlands Basin	YES	NO	x
9.	Retention Pond	YES	NO	x
10.	Constructed Wetlands Channel	YES	NO	x
11.	Innovative/Proprietary Technology *	YES	NO	x

*Use of Innovative/Proprietary Technology will require the submission of the technology developer's technical data, specifications, design criteria and installation requirements for review.

L. ENGINEER'S CERTIFICATION

Thereby certify that this Construction Activities Stormwater Management Plan for the Synergy Village-3200 South Federal Boulevard, Project #EC 2016-EC-0000085 was prepared by me (or under my direct supervision) in accordance with the provisions of the Construction Activities Stormwater Discharge Permit for the City and County of Denver. I understand the City and County of Denver does not and will not assume liability for drainage facilities design.



Robert D. Thomas
Registered Professional Engineer
State of Colorado No. 28842

M. OWNER'S CERTIFICATION:

"This Construction Activities Stormwater Management Plan has been submitted as the application for a Construction Activities Stormwater Discharge Permit filed with the Wastewater Management Division of the City and County of Denver. I understand that additional erosion control, sediment control and water quality enhancing measures may be required of the owner and his or her agents due to unforeseen pollutant discharges or if the submitted plan does not function as intended. The requirements of this plan shall be the obligation of the land owner and/or his successors or heirs; until such time as the plan is properly completed, modified, or voided."

Lowell G. Jank _____ Date 4-24-2017
Owner or Authorized Agent
Representing: OWNER & CONTRACTOR

II. SITE DESCRIPTION

A. Construction Activities

The Stormwater Management Plan and Report is for the Synergy Village-3200 South Federal Boulevard project located at 3200 South Federal Boulevard, Denver, CO 80326-6027. The project is composed of a multi-family apartment complex; single-family attached residences (duplexes), and a single family residence, private drives and parking lot. Soil disturbing activities will include clearing and grubbing of existing landscaping; removal of existing asphalt; installing perimeter and other erosion and sediment controls; grading; excavation for utility services and building foundations; construction of the structures; walks, hardscape and paving; and preparation for final planting and landscaping.

B. Proposed BMP Sequence

The project will be constructed in three phases. The general sequence of BMP installation with respect to construction activities are as follows:

Phase 1: (Initial)

1. Demolition, Clearing and Grubbing

Define the work area and place construction fencing prior to the start of demolition and clearing activities. Identify and control construction access points, haul off dumpsters, construction trailers, storage areas, and portable toilet facilities shall be determined and controlled. Disturbance to existing vegetation shall be minimized and vehicle tracking pads for disturbed access points shall be provided. Perimeter controls (such as silt fences, sediment control logs, Inlet protection and curb socks) shall be installed downstream of the construction.

Define the limits of the clearing and grubbing and install silt fence or sediment control logs beyond the toe of future slopes as defined on the grading plan. Soil stockpile areas shall be designated and stockpile control measures (silt fences, etc.) shall be placed beyond the slope. Inlet protection and curb socks shall be placed at all on-site and off-site inlets downstream of the construction. A Temporary Sediment Basin shall be constructed at the southwest corner of the site. Grading can commence, upon inspection and acceptance of the initial erosion and sediment control measures based on the requirements of the approved erosion and sediment control plan and the City and County of Denver Wastewater Division.

As grading and building construction progresses, provide additional sediment controls as needed or as shown on the erosion and sediment control plan. The additional controls consists of sediment control logs or check dams in the flowlines of newly graded swales, compacted earthen berms, silt fences at the

down slopes of newly disturbed areas, street sweeping and surface roughening and/or temporary seeding for areas that are to be open until landscaping or hard surface is completed.

Potential pollutants include: sediment, vehicle fuels and lubricants, concrete, construction debris, pipe materials, landscaping materials, and paving products.

Phase 2: (Interim)

1. Underground Utility (Water and Sanitary Sewer Services) Construction

Prior to utility construction, designate the location for trash and recycle containers, vehicle and equipment refueling, material storage, and concrete washout. Stored materials shall be elevated off of the ground. Materials in containers shall be stored in a covered area. Fueling, storage, and trash/recycle container areas shall be protected with a minimum one-foot high containment berm with a total volumetric capacity of at least twice that of the materials being stored in order to prevent migration of any spills.

All previous BMPs shall be maintained for the installation of underground utilities. Silt fencing, curb socks, and/or other BMPs shall be provided downstream of the area of disturbance when trenching for utilities is outside of the protected area. Temporary spoil piles from trenching shall be up-grade of the trench and the trench backfilled immediately after inspection.

Excess material shall be salvaged when and if possible with the waste material being disposed of in a legal and proper manner. Empty containers that held hazardous materials such as solvents, lubricants, paints, fuel, etc., shall be disposed of in a proper and legal manner.

During the installation of the new outlet structure, outlet and inlet protection shall be provided. Sediment control measures shall be in place and functioning properly during flushing and testing of utilities.

The disturbed areas shall be paved, landscaped, and /or reseeded and crimp mulched per the contract documents after the completion of construction. All erosion control BMPs shall remain in place until final stabilization has been achieved.

Potential pollutants include: sediment, vehicle fuels, solvents, concrete, various pipe materials, and bituminous materials.

2. Building Construction

Prior to building construction, designate the location for trash and recycle containers, vehicle and equipment refueling, material storage, and concrete washout. Stored materials shall be

elevated off of the ground. Materials in containers shall be stored in a covered area. Fueling, storage, and trash/recycle container areas shall be protected with a minimum one-foot high containment berm with a total volumetric capacity of at least twice that of the materials being stored in order to prevent migration of any spills.

All previous BMPs shall be maintained for building construction. Silt fencing, curb socks, and/or other BMPs shall be provided downstream of the area of disturbance.

Excess material shall be salvaged when and if possible with the waste material being disposed of in a legal and proper manner. Empty containers that held hazardous materials such as solvents, lubricants, paints, fuel, etc., shall be disposed of in a proper and legal manner.

Potential pollutants include: sediment, vehicle fuels, solvents, paints, adhesives, cleaners, asphalts, tars, form oils, concrete, various pipe materials, and other bituminous materials.

3. Paving, Sidewalk, and Hardscape construction

Prior to paving, sidewalk, and hardscape construction, designate the location for trash and recycle containers, vehicle and equipment refueling, material storage, and concrete washout. Stored materials shall be elevated off of the ground. Materials in containers shall be stored in a covered area. Fueling, storage, and trash/recycle container areas shall be protected with a minimum one-foot high containment berm with a total volumetric capacity of at least twice that of the materials being stored in order to prevent migration of any spills.

All previous BMPs shall be maintained for the installation of underground utilities. Silt fencing, curb socks, and/or other BMPs shall be provided downstream of the area of disturbance when trenching for utilities is outside of the protected area.

Excess material shall be salvaged when and if possible with the waste material being disposed of in a legal and proper manner. Empty containers that held hazardous materials such as solvents, lubricants, paints, fuel, etc., shall be disposed of in a proper and legal manner.

The disturbed areas shall be paved, landscaped, and /or reseeded and crimp mulched per the contract documents after the completion of construction. All erosion control BMPs shall remain in place until final stabilization has been achieved.

Potential pollutants include: sediment, vehicle fuels, equipment fuels, solvents, paints, asphalts, tars, concrete, and other bituminous materials.

Phase 3: (Final)

1. Landscaping

Final stabilization will be when the parking lot is paved, building construction is complete and final landscaping is in place and has reached the point of good growth. Final landscaping will consist of the installation of trees, shrubs, mulched areas, and sod (See Landscape Plan). Rain gardens consisting of sod and a 4" slotted PVC pipe will be placed as shown on the plans for water quality.

Potential pollutants include: sediment, fertilizer, herbicides, pesticides, and chemicals.

C. Potential pollution Sources

Potential pollution sources at the site include sediment, equipment/vehicle fueling, vehicle washing, vehicle maintenance, Asphalt and oil products, concrete metals, waste storage and disposal, portable toilets, dust or particulate disturbing operations, offsite tracking of sediment. Chemicals used in construction activities include but are not limited to cleaners, solvents, paints, etc. and are considered as potential pollutants.

The storage of potential pollutants, except for stock piles, shall be in the stabilized staging area. The SWMP shall be updated regularly should the staging area or stock piles moved or added.

D. Non-Stormwater Discharges

Foreseeable non-stormwater discharges from the site are potable water, water from washing tools and concrete mixer chutes, and construction dewatering. Potable water may be used for grading, dust control, building construction, and to irrigate erosion control and permanent landscaping. These uses could create return flows. Efforts shall be made to conserve potable water used in these operations. Potable water may also be used in emergency fire fighting activities. Washing of tools and washout water from concrete mixer chutes are anticipated non-stormwater discharges. These activities will be performed per the requirements of this report. Dewatering is not anticipated with the construction of this project.

E. Non-Stormwater Discharges

Stormwater from this development flows into the South Platte River. The flows are conveyed eastward via overland flows and piped flows within a storm sewer system to the South Platte River.

III. SITE MAP

The erosion control plans in the Appendix shows the development of the site. The plans show the proposed temporary and permanent BMP's. The on-site SWMP will contain an up-to-date erosion control plan in order to provide a method of tracking the progress of construction activities. The limits of construction and area of disturbance are shown on the plans.

IV. STORMWATER MANAGEMENT CONTROLS

A. SWMP Administrator

The owner or contractor shall designate an individual(s) as the SWMP Administrator(s) in responsible charge for developing, implementing, maintaining, and revising the SWMP. The individual(s) is (are) Loren Funk title: PRESIDENT of NICHOLAS CONSTRUCTION, INC.. The SWMP Administrator is the person(s) who is critical; in making sure the stormwater quality is protected at the construction site and is the point of contact for all aspects of the development's SWMP. The Administrator shall have the proper documentation on site, complete inspections as required, maintain the BMP's as needed, and provide training relevant to stormwater protection practices for the site to employees and contractors. The administrator is responsible for ensuring compliance with the SWMP plans and permits; amending the SWMP when there is a change to design, construction activities, operation, or maintenance of the site, or when a BMP is ineffective, or no longer needed; and completing the Notice of Transfer and Acceptance of Terms form or completing the request to the Colorado Department of Health and Environment (CDPHE) of the Inactivation Notice.

B. Best Management Practices (BMP's)

BMP's for stormwater pollution prevention includes structural and non-structural practices. The BMP's are intended to reduce the amount of pollution entering stormwater runoff and leaving the project site. All personnel working on the site and the administrator(s) shall review and understand the BMP's identified in the Appendix. Structural BMP's for this site are shown on the Erosion Control plan in the Appendix.

V. FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT

Final Stabilization of the site is obtained when all ground surface disturbing activities have been completed and a uniform vegetation cover has been established or equivalent permanent physical erosion control methods have been used. Uniform Vegetation cover is defined when individual plant density is at least 70% of pre-disturbance levels.

All temporary erosion control measures shall be removed and properly disposed within 30 days after final stabilization has been achieved or after the temporary measures are no longer required, whichever is earlier. Trapped sediment and disturbed soil areas resulting from the disposal of the temporary measures shall be returned to the final grades and permanently stabilized to prevent erosion.

VI. LANDSCAPING

The SWMP Administrator shall work with the contractors so that as landscaping proceeds, the provisions of the SWMP are implemented. The contractor shall coordinate with the production staff and subcontractors in regards to the provisions of the SWMP. The contractor should ensure that the following practices are followed in areas that are constructed where landscaping will occur.

1. Landscaping materials shall not be placed or stockpiled in the street except as approved by the City.
2. Materials shall be removed or used as quickly as possible if the materials must be placed in the street. BMP's such as rock (curb) socks, sediment control logs, impermeable liners, tarps, etc., shall be installed prior to stockpiling of the materials.
3. After the materials are moved or used, the streets shall be swept and cleaned. The materials must not be washed into the storm sewer system.

VII. INSPECTION AND MAINTENANCE

A. Minimum Inspection Schedule

The designated responsible party for inspections at the site will make a thorough inspection at least every 7 calendar days during active construction to ensure the BMPs implemented on site are functioning as specified.

In addition to every 7 calendar days, inspections will also be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Provided the timing is appropriate, the post-storm inspections may be used to fulfill the routine inspection requirement, but this resets the 7 calendar day schedule.

B. Post-storm inspections

Post-storm inspections must occur within 24 hours of a precipitation event that causes surface erosion. If no construction activities will occur following a storm event, post-storm event inspections will be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The delayed inspection will be documented in the inspection record.

C. Inspections at Completed Sites/Areas

For completed construction sites, an inspection of the site will be made at least once every month until final stabilization is reached. The following must be met in order for the site to be inspected on a monthly basis instead of every 7 calendar days:

- All construction activities that will result in surface ground disturbance are completed;
- All activities required for final stabilization have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
- The SWMP has been amended to indicate those areas that will be inspected in accordance with the reduced schedule.

The reduced frequency schedule also applies to sites or portions of sites where continuing construction activities can be conducted without disturbance of the ground surface, for example, interior building construction.

D. Winter Conditions Inspections Exclusion

Inspections will not be conducted where construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. The following information will be documented in the inspection record for use of this exclusion:

- Dates when snow cover occurred,
- Date when construction activities ceased, and
- Date melting conditions began.
- Inspection Requirements
- Inspection Scope

The following items will be examined for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters during the inspection and reported on the inspection reports:

- Construction site perimeter,
- All disturbed areas,
- Material and/or waste storage areas that are exposed to precipitation,
- Discharge locations, and
- Locations where vehicles access the site.

All erosion and sediment control practices identified in the SWMP will be evaluated to ensure that they are maintained and operating correctly.

1. Inspection Reports

The inspection report form is located in Appendix. Inspection reports must identify any incidents of non-compliance with the terms and conditions of the general permit.

The inspection record will note evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters.

The inspection report will include:

- The inspection date;
- Name(s) and title(s) of personnel making the inspection;
- Location(s) of discharges of sediment or other pollutants from the site;
- Location(s) of BMPs that need to be maintained;
- Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
- Location(s) where additional BMPs are needed that were not in place at the time of inspection;
- Deviations from the minimum inspection schedule;

- Description of corrective action for locations where discharges occurred or BMPs that require maintenance, repair, are ineffective or inadequate, and where additional BMPs are needed;
- Dates that corrective action(s) were taken;
- Measures taken to prevent future violations, including requisite changes to the SWMP, as necessary; and
- After adequate corrective action(s) have been taken, or where a report does not identify any incidents requiring corrective action, the report will contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.

2. Required Actions Following Site Inspections

Where site inspections note the need for BMP maintenance activities, BMPs must be maintained such that the conditions in those sections are met.

E. BMP Maintenance

All erosion and sediment control practices and other protective measures identified in the SWMP will be maintained in effective operating condition. BMPs that are not adequately maintained in accordance with good engineering, hydrologic and pollution control practices are considered to be no longer operating effectively and will be modified or replaced. BMPs implemented at the site must be adequately designed and maintained to provide control for all potential pollutant sources associated with the construction activity to prevent pollution or degradation of State waters. Where site inspections note the need for BMP maintenance activities, BMPs will be maintained such as these conditions are met. Maintenance items include, but are not limited to: removal of accumulated sediment, repair or replacement of worn or damaged sections, repositioning to correct placement; and reinstallation of BMPs displaced. Accumulated sediment and debris will be removed from a BMP when the sediment level reaches one-half the height of the BMP or at anytime that sediment or debris adversely impacts the functioning of the BMP.

F. Replacement and Failed BMPs

Adequate site assessment will be performed as part of the comprehensive inspection and maintenance procedures, to assess the adequacy of BMPs at the site, and the necessity of changes to those BMPs to ensure continued effective performance. Where site assessment results in the determination that new or replacement BMPs are necessary, the BMPs will be installed to ensure on-going implementation of BMPs. Where BMPs have failed, resulting in noncompliance, they will be addressed as soon as possible, immediately in most cases, to minimize the discharge of pollutants. When new BMPs are installed or BMPs are replaced, the SWMP will be updated. .