DEPARTMENT OF THE NAVY – NAVFAC SOUTHWEST
Naval Facilities Engineering Command
1220 Pacific Highway, San Diego, California 92132-5190

FINAL

FALL 2014 AND WINTER 2015
ANNUAL POST-CLOSURE INSPECTION AND MAINTENANCE REPORT

INSTALLATION RESTORATION PROGRAM SITE 7 AREA 1
(FORMER STATION LANDFILL)
NAVAL WEAPONS STATION SEAL BEACH, SEAL BEACH, CALIFORNIA

November 2015

Contract No.: N62473-13-D-4801
Task Order No.: 0006
Document Control No.: RBAE-4801-0006-0011

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ACRONYMS AND ABBREVIATIONS

BRADY	Richard Brady & Associates
DON	Department of the Navy
IRP	Installation Restoration Program
NAVWPNSTA	Naval Weapons Station
NTCRA	non-time-critical removal action
PCIMP	Post-Closure Inspection and Maintenance Plan
Water Board	Regional Water Quality Control Board

1.0 INTRODUCTION

This report describes the results and findings of the fall 2014 and winter 2015 annual post-closure inspection activities conducted at the Installation Restoration Program (IRP) Site 7 Area 1, also referred to as the Former Station Landfill, at Naval Weapons Station (NAVWPNSTA) Seal Beach, California (Figure 1).

Richard Brady & Associates (BRADY) conducted the post-closure inspections described in this report under the Department of the Navy's (DON's) directive and under contract number N62473-13-D-4801, Task Order 0006. The inspections were conducted in accordance with the Post-Closure Inspection and Maintenance Plan (PCIMP) as part of the proposed post-closeout monitoring (TetraTech, 2004a). The PCIMP describes the post-closure inspection and maintenance inspection and repair procedures and requirements for the IRP Site 7, Area 1. The inspections include pre- and post-rain season inspections and inspections after heavy rain events of more than 0.5 inches. All inspections were conducted by a State of California professional geologist.

The purpose of this report is to document the condition of the landfill cover, vegetative cover, and access roads at the time of the inspections. The inspections are performed to ensure the soil cover is functioning adequately to isolate the buried waste from the surface, the cover continues to provide adequate drainage (minimizing erosion), and any settlement or subsidence of the cover is not jeopardizing the cover integrity (TetraTech, 2004a; 2012). In accordance with the PCIMP (TetraTech, 2004a), the soil cover was inspected to document whether it is intact and free of major cracking (2 inches or wider, deeper than l2 inches, and longer than 20 feet), erosion (deeper than 6 inches), and surface depressions that could cause ponding or unusual surface conditions. The vegetative cover was inspected to document vegetation progress over time, visually estimate vegetation cover, observe growth of any nuisance weeds, determine location of poor growth, and check for soil erosion.

This report summarizes the inspection results, any changes to the landfill cover or the surface water management system, and any maintenance activities or repairs that were implemented during the inspection period. This report also provides recommendations based on the inspections. The relevant PCIMP forms (101-104) completed during each inspection, along with figures showing changes in soil cover, erosion control, and vegetation cover, are included as Appendix A. A photo log documenting site inspection activities is included as Appendix B.

This report will be kept on file with the NAVWPNSTA Seal Beach Administration Records. Copies will also be kept in the Naval Facilities Engineering Command Southwest Administrative Record files.

1.1 Facility Location and Background

NAVWPNSTA Seal Beach is located in the northwest corner of Orange County, California, in the City of Seal Beach, which is approximately 20 miles south of Los Angeles. Nearby communities include the Cites of Huntington Beach, Westminster, Los Alamitos, and Garden Grove. Comprised of 5,256 acres, NAVWPNSTA Seal Beach is a Navy weapons and munitions

loading, storage, and maintenance facility. NAVWPNSTA Seal Beach has been operated by the Navy and its contractors since its inception in 1944.

IRP Site 7 consists of six distinctive areas (designated Areas 1 through 6) totaling approximately 33 acres located near the southern boundary of NAVWPNSTA Seal Beach and at the eastern boundary of the Seal Beach National Wildlife Refuge (Figure 1).

1.2 Site History and Background

Landfill activities were reportedly conducted at the site from approximately 1955 to 1973. A large variety of wastes generated by NAVWPNSTA Seal Beach during the period of active landfilling may have been buried in trenches at IRP Site 7. Almost any type of waste generated on the station may have been disposed of at IRP Site 7. The major types of waste reportedly disposed of in the landfill include small, mostly empty containers that once contained paints, petroleum products, various solvents, used rags, batteries, asbestos, and inert construction debris (TetraTech, 2004a; 2012).

IRP Site 7 consists of six distinctive areas, designated Areas 1 through 6. Only Area 1 requires post-closure inspection and maintenance. Area 1 is located in the northeast portion of IRP Site 7 and covers approximately 9.8 acres. Most of the waste disposal and landfilling activities took place in Area 1 in a series of unlined trenches lying in an east-west orientation (Naval Energy and Environmental Support Activity, 1985). Exploration during a supplemental characterization indicated that the depth of the debris varied between 5.5 and 9 feet below ground surface (bgs), with an average depth of 6.4 feet bgs (SWDIV, 1999).

A non-time-critical removal action (NTCRA) was completed at IRP Site 7 Area 1 in April 2004. The intent of the NTCRA was to minimize any potential threats to human health and the surrounding environment. The removal action was conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act and National Oil and Hazardous Substances Pollution Contingency Plan requirements.

The removal action at IRP Site 7 Area 1 involved repair to the existing soil cover by placing additional cover in areas where waste was exposed or where cover thickness was deficient. The intent of the removal action at IRP Site 7 Area 1 was to repair the existing landfill soil cover and ensure a minimum of 2 feet of soil cover over the buried waste, thus preventing direct contact with buried waste and eliminating the potential migration of contamination through windblown dust, infiltrations, and surface runoff. Removal action at the remaining areas of IRP Site 7 involved removal of buried and surface debris. The removal action at IRP Site 7 is documented in the Final Project Closeout Report (TetraTech, 2004b).

A PCIMP (TetraTech, 2004a) was developed following the completion of the removal action to describe the post-closure annual inspections and maintenance activities for IRP Site 7 Area 1.

Based on the recommendations made in the Final 2005 First Semiannual Post-Closure Inspection and Maintenance Report (TetraTech, 2005) following the March 2005 inspections, landfill cover maintenance was conducted to repair several settlement and ponding areas at the western portion of the landfill, and to reseed the western portion following the grading and repairs of the

settlement areas. Landfill maintenance was conducted in September 2005. The second 2005 semiannual post-closure inspection was conducted in October and November 2005 (TetraTech, 2006a). Subsequent third semiannual inspection and maintenance activities were conducted in March 2006, the results of which were discussed and documented in the Final 2006 First Semiannual Post-Closure Inspection and Maintenance Report (TetraTech, 2006b). Results of the 2006 report indicated that no areas needed repairs or corrective action and that the landfill cover grading provided adequate sheet flow drainage to minimize future ponding. Landfill post-closure inspections and maintenance activities were temporarily suspended after the March 2006 event and resumed with the winter 2008/2009 inspections (TetraTech, 2009). Previous reports were submitted semiannually, but at a meeting between the DON and the Regional Water Quality Control Board (Water Board) held on January 12, 2010, a decision was made to submit the future reports annually. Therefore, inspections conducted during the 2009-2010, 2010-2011, 2011-2012, 2012-2013, and 2013-2014 season were documented in annual reports (TetraTech, 2010; 2011; and 2012; BRADY, 2013; and 2014).

1.3 Scope of Fall 2014 and Winter 2015 Annual Inspections

This report addresses landfill cover maintenance, cover inspection, vegetation inspection, drainage inspection, and site restoration activities conducted for fall 2014 and winter 2015 rainy season. This report summarizes the inspection results and recommendations provided in the inspection reports, and describes any maintenance and repairs that were implemented during the inspection period.

The DON had previously instituted a groundwater monitoring program for IRP Site 7 to monitor the status and condition of groundwater at this site. Results of the Third Annual Groundwater Monitoring Report for IR Sites 5 & 7 (BEI, 2007) recommended discontinuing groundwater monitoring at the site based on findings of a fate and transport evaluation. The Department of Toxic Substances Control and the Water Board concurred with the findings of this report and the recommendation to discontinue groundwater sampling at IRP Site 7 in their letters dated August 1 and July 12, 2007, respectively (DTSC, 2007, Water Board, 2007).

IRP Site 7 Area 1 does not have a landfill gas control, recovery, or emissions and migration monitoring system. There are no landfill gas migration monitoring wells at this site. Previous investigations conducted at IRP Site 7 Area 1 have indicated insignificant landfill gas (CH2M Hill, 2002). No surface or subsurface emissions of landfill gas, including methane gas, have been detected at IRP Site 7 Area 1 during previous site investigations (TetraTech, 2012).

IRP Site 7 Area 1 does not have a liquid management system, and none is planned for this site. The site neither produces any liquids associated with collection, nor does it have monitoring and disposal of landfill gas condensate, groundwater seepage, a leachate collection system, groundwater extraction wells, or groundwater storage tanks and sumps (TetraTech, 2012).

IRP Site 7 Area 1 does not have a stormwater management program other than semiannual inspection of the drainage controls (TetraTech, 2004a). The visual inspection of the surface drainage controls and soil loss due to erosion are documented in Form 102 (Appendix A).

Rainfall for the 2014-2015 season recorded at the Los Alamitos Army Airfield (Wunderground.com, 2015), located approximately 4 miles north of IRP Site 7, and the dates of the inspection events are summarized as follows:

Summary of 2014-2015 Rainfall Season

Date	Inches of Rain	Comment
September 8	0.02	
September 30	No Rain	Pre-Rainy Season Inspection and Maintenance Event
November 1	0.30	
November 2	0.02	
November 30	0.07	
December 1	0.02	
December 2	0.93	Qualifying Event
December 3	0.80	Qualifying Event
December 4	0.01	Post-Rain Inspection
December 12	1.52	Qualifying Event (Not inspected due to observations during inspection 8 days prior)
December 16	0.03	
December 17	0.20	
December 30	0.04	
January 10	0.34	
January 11	0.59	Qualifying Event
January 14	No Rain	Post-Rain Inspection
January 26	0.09	
February 22	0.37	
February 23	0.04	
March 1	0.04	
March 2	0.27	
April 7	0.19	
April 25	0.02	
May 7	0.03	
May 8	0.32	
May 14	0.44	
May 15	0.32	Qualifying Event
May 20	No Rain	Post-Rain Inspection
July 18	0.17	
July 19	0.23	
July 23	No Rain	Post-Rainy Season Inspection

The inspection conducted on September 30, 2014 serves as the annual pre-rainy season landfill cover inspection for this inspection period. The first qualifying rain event of the season occurred on November 30 – December 4, 2014, with a total of 1.83 inches of rain over 5 days. This was the first of four rain events that exceeded 0.5 inches during the 2014-2015 rain season. The inspection was conducted on December 4, 2014.

The next rain event occurred 8 days later on December 12, 2014, with 1.52 inches of rain. No post-rain event inspection was conducted because it was early in the rain season and the

inspection 8 days before showed adequate drainage and no significant erosion. Considering that the average rainfall for Seal Beach in December is 0.63 inches, but the average rainfall for January and February is 1.20 and 1.15 inches respectively (www.weatherunderground.com), the resources available for inspections were reserved for subsequent events in the rain season.

The next rain event occurred on January 10 - 11, 2015, with a total of 0.93 inches of rain over 2 days. A post-rain inspection was conducted on January 14. The fourth and final qualifying event of the season occurred May 14 - 15, 2015, with a total of 0.76 inches of rain over 2 days. The inspection was conducted on May 20, 2015. The final inspection conducted on July 23, 2014 serves as the post-rainy season inspection for this inspection period.

1.4 Land Use Control

There are no structures or buildings present on the site and none are planned for the future. No regular station activities have taken place at IRP Site 7 Area 1. Future developments or agricultural activities on the landfill are highly unlikely. The future land use at this site is open space and the site will continue to be maintained as such (TetraTech, 2004a).

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2.0 SOIL COVER INSPECTION AND MAINTENANCE

This section describes the landfill soil cover inspections that were conducted by a California Professional Geologist during the 2015 reporting period. The inspection and field observations were recorded on Forms 101 and 102 (included in Appendix A) and evaluated relative to the performance standards and requirements provided in the PCIPM (TetraTech, 2004a).

According to the PCIMP, the purpose and the primary functions of the soil cover are to isolate the buried waste from the surface, promote drainage and minimize erosion or abrasion of the cover, and accommodate settlement and subsidence so that the cover integrity is maintained (TetraTech, 2004a). To perform these functions, the soil should remain intact and free of major cracking (defined as cracks 2 inches or wider, deeper than l2 inches, and longer than 20 feet), erosion (deeper than 6 inches), and surface depressions that could cause ponding.

2.1 Soil Cover Inspection

Routine visual inspections of the soil cover were conducted in September 2014, December 2014, January 2015, May 2015, and July 2015.

In accordance with the PCIPM, inspection procedures consisted of grid walking the site to identify any surface cracking, localized settlement, ponding, or unusual surface conditions. In addition, all surface drainage swales and slopes were visually inspected for any failures, breaks in grade, etc.

2.2 Summary of Field Observations

The initial pre-rain season inspection in September 2014 was performed prior to the first qualifying rain event of the season. During the initial inspection, there was minimal change from the July 2014 post-rainy season observations. Only one cluster of new burrows was observed, and no new flow lines were observed.

During the December 2014 post-rain event inspection, no sloughing, sliding, subsidence or depression was observed. No new flow lines were observed, and there was minimal change in the signs of burrowing rodent activity since the September 2014 inspection event. The surface soil across the entire site was saturated and very soft. Ponds less than approximately 2 inches in depth were present in the western 1/3 of the landfill.

During the January 2015 post-rain event inspection, conditions were similar to those reported in the December 2014 post rain inspection. No new flow lines or other erosion were observed, the surface soil was saturated, and ponds less than approximately 2 inches in depth were present in the western 1/3 of the landfill. All jute mesh and straw wattles were functioning properly.

During the May 2015 post-rain event inspection, no sloughing, sliding, subsidence or depression was observed. One new flow line less than 2 inches deep was observed in the southwest area. There was minimal change in the signs of burrowing rodent activity, one fresh large burrow was mapped. The surface soil across the entire landfill cover was firm and no ponding was observed.

The post-rainy season inspection was performed in July 2015. The surface soil was soft to firm and moist to wet. There was no change in the signs of burrowing rodent activity from observations made during the May 2015. The single fresh burrow that was observed during the May site visit appeared inactive. No sloughing, sliding, subsidence or depression was observed. One potentially new flow line less than 2 inches in depth was observed in the southwest area of the landfill.

There is a lack of vegetation coverage (predominately 0-15 percent coverage) in the western third of the landfill cover. Vegetated areas did not increase significantly in size during the inspection period.

The landfill cover appears stable and intact. No cover failures resulting from stormwater run-off, sediment build up, sloughing, sliding, or soil cover losses were observed during the inspection period. In addition, there was no waste exposure as a result of cracks, upheaves, depressions or excessive rodent activities.

2.3 Soil Cover Findings and Recommendations

No cover failures, unstable conditions, or significant erosion, cracks, depressions, soil loss, or excessive rodent burrowing were observed during the 2015 reporting period.

In areas where the jute mesh covering old shallow flow lines had degraded, new jute mesh was installed. No straw wattles needed to be replaced as they were in good to excellent shape, and no new straw wattles were installed. The minor erosion that occurred in prior years appears to be adequately mitigated with jute mesh and straw wattles.

The areas impacted by burrowing rodents did not appear to increase in size during the inspection period, and several clusters are naturally being compacted. As such, vector control does not seem to be required at this time.

The eastern two-thirds of the landfill contains good vegetative soil cover and appears to satisfy the requirements of the PCIMP (TetraTech, 2004a) and project specifications. The western third of the landfill cover does not have complete vegetation coverage (predominately 0-15 percent coverage). Significant soil erosion as a result of the lack of vegetation coverage was not observed during this inspection period or previous inspection periods (TetraTech, 2011; 2012; BRADY, 2013; 2014). Vegetation inspection and maintenance are discussed in more detail in Section 3.0.

Based on the intact and stable condition of the soil cover, no recommendations for additional work are proposed at this time except to fill old burrow holes and tamp soil mounds as part of routine maintenance. It is recommended that the inspection program continue to monitor for minor soil erosion, and that the erosion control measures (jute mesh and straw wattles) be inspected and maintained as needed prior to and during the next rainy season.

3.0 VEGETATION COVER INSPECTION AND MAINTENANCE

This section describes the vegetation soil cover inspections that were conducted during the 2014-2015 rain season reporting period. The inspection and field observations were recorded on Form 103 (included in Appendix A) and evaluated relative to the performance standards and requirements provided in the PCIPM (TetraTech, 2004a).

According to the PCIMP, the primary function of the vegetation cover is to provide moisture penetration erosion control and visual enhancement across the landfill top and slopes. The vegetation cover selected for IR Site 7 Area 1 is primarily composed of California native special-species plants (TetraTech, 2004a). The cover is designed to evolve into a natural vegetation community. The plants will survive on seasonal rainfall and are expected to turn green in the winter and fade to brown during the dry season. The cover is intended to appear similar to natural open space areas in the Seal Beach National Wildlife Refuge.

The Final Fall 2009 and Winter 2010 Annual Post-Closure Inspection Report included a recommendation to plant small 2-inch-tall live plug plants (suitable salt marsh tolerant species) in grid patterns in six areas where the ground was bare of vegetation (TetraTech, 2010). The Final Fall 2010 and Winter 2011 Annual Post-Closure Inspection Report included a recommendation to continue the biweekly watering program that was started for the small plants. The watering program was continued and subsequently increased to weekly during the months of August, September, and the first weeks of October 2011 (TetraTech, 2011). The Final Fall 2011 and Winter 2012 Annual Post-Closure Inspection Report did not include a recommendations for additional plantings or continued watering (TetraTech, 2012).

3.1 Protective Vegetation Cover Inspection

Routine visual inspections of the vegetation cover were conducted in September 2014, December 2014, January 2015, May 2015, and July 2015.

In accordance with the PCIPM, inspection procedures consisted of conducting photographic documentation at established photographic documentation points to show progress overtime, visually estimating overall absolute vegetation cover, observing growth of nuisance weeds and plant materials, determining locations of poor growth, and checking for soil erosion. In addition, a geographic information system survey of Area 1 was conducted at the pre-rain season inspection (September 2014) and at the post-rainy season inspection (July 2015) to measure annual changes in vegetation cover over time.

3.2 Summary of Field Observations

Form 103 was completed for each of the five inspections conducted during this inspection period (included in Appendix A). Photographs showing the vegetation coverage are included in Appendix B.

The western third of the landfill is sparsely vegetated (predominately 0-15 percent, with patches of greater vegetation coverage). The lack of vegetation in the western portion is likely due to relatively elevated salinity levels in the soil inhibiting plant growth rather than soil erosion, since soil loss was not observed during the inspection period. During the 2014-2015 season, the total area of 0-15 percent (sparse) vegetation cover in the western third of the landfill increased

slightly from approximately 2.76 to 2.89 acres. The 15-45 percent (light) vegetation cover in the western third decreased from 1.09 to .88 acres and the 45-75 percent (moderate) cover increased from .19 to .26 acres. The 75-100 percent (heavy) cover areas remained mostly the same from .57 to .58 acres. Due to the lack of rain, the established vegetation had turned brown and looked dormant during the December and January post-rain inspections. In May most of the established vegetation patches had robust fresh growth, including areas that were ponded during the December inspection.

The eastern two-thirds of the landfill is adequately covered with vegetation (between 45 – 100 percent) coverage. The satisfactory condition of vegetation in the eastern portion of the landfill may be attributed to the slightly higher surface elevations in that area allowing for better drainage, which may help inhibit salt buildup (TetraTech, 2012). During the 2014-2015 season, vegetation coverage in the eastern two-thirds of the landfill remained steady. Two patches of non-native ice-plant that had been documented in previous seasons were found to have changed from a poor, dry condition in July 2014 to brown and dessicated by July 2015. The amount of non-native tumbleweed in the eastern two-thirds of the landfill has increased during the 2014-2015 season when compared to the previous season. There were no identified areas of significant dead vegetation that could be a potential for fire hazard.

3.3 Vegetation Cover Recommendations

The eastern two-thirds of the landfill contains good vegetative cover and appears to satisfy the requirements of the PCIMP (TetraTech, 2004a) and project specifications. The western third of the landfill cover does not have complete vegetation coverage, but the lack of vegetation coverage does not result in unacceptable soil erosion (Figure 2). Overall the landfill cover appears stable, and significant top soil erosion, incidents of vegetation loss, and significant fire hazards or dead vegetation were not observed during the inspection period. No recommendations for additional work are proposed at this time. It is recommended that the inspection program continue to monitor for minor soil erosion, and the maintenance program continue to ensure that the erosion control measures (jute mesh and straw wattles) remain in good condition.

4.0 SURFACE WATER MANAGEMENT SYSTEM INSPECTION AND MAINTENANCE

This section describes the surface water management inspection summaries and evaluation that was conducted by a California Professional Geologist during the 2015 reporting period. The inspection and field observations were recorded on Form 102 (included in Appendix A) and evaluated relative to the performance standards and requirements provided in the PCIPM (TetraTech, 2004a).

According to the PCIMP, the landfill surface is generally flat, and the deck of the landfill slopes gently toward the outside perimeters from a ridge created near the northeast portion of the landfill. In general, the areas to the south and west of the ridge drain toward the south and the areas to the north and east drain toward the east (TetraTech, 2004a). The area to the south of the landfill becomes inundated with water during periods of high tide.

4.1 Surface Water Management Inspection

Routine visual inspections of the surface water management system were conducted in September 2014, December 2014, January 2015, May 2015, and July 2015.

In accordance with the PCIPM, inspection procedures consisted of visual inspection of the cover system and all surface drainage, swales and slopes to identify eroded areas (erosion deeper than 6 inches), gullies, slope deformation, and cover wash out. In addition, surface drainage and sheet flow systems were monitored for wet or saturated cover soils, ponding, or areas where there is a potential for increased infiltration.

4.2 Summary of Field Observations

During the initial inspection (September 2014), the existing jute mesh and straw wattles were inspected to ensure they were functioning properly. Areas of older jute mesh where flow lines had started to develop were addressed with new jute mesh. No sloughing, subsidence or depressions were observed. No ponding or wet surface soils were observed. No erosion or significant silt deposition was observed. No new flow lines were observed.

During the December 2014 post-rain event inspection, fourteen ponds were observed in the western third of the landfill. They ranged in size from 10 to 40 feet across and were approximately 2 inches deep or less. One of the ponds was noticeably larger, with dimensions of approximately 30 by 120 feet. This pond drained from its eastern edge and the wattle and jute mesh in the drain area was found to be effective in preventing erosion. Ponding observed along the southern boundary of the landfill cover appeared to be an extension of the adjacent tidal pond. In general the ponds were partially co-located with previously mapped areas of established but dormant vegetation. No cracks or fissures were found in areas of ponding.

The January 2015 post-rain inspection resulted in very similar observations as the previous inspection. There was some ponding and in general the ponds were partially co-located with previously mapped areas of established but dormant vegetation. No cracks or fissures were found in areas of ponding. No erosion or significant silt deposition was observed, and no new flow lines were observed.

During the May 2015 post-rain inspection no deficiencies were observed. There was no ponding on the site, no washouts, and no significant erosion or silt deposition. No sloughing, sliding, or subsidence was observed. Only one new flow line, less than 2 inches deep, was observed in the southwest area. The straw wattles and jute mesh installed on the site were inspected to ensure they were continuing to function properly. All wattles and jute mesh were functioning properly. Most jute mesh was in fair condition, some was in poor condition. Straw wattles were in good condition.

During the July 2015 post-rainy season inspection no sloughing, sliding, subsidence, cracking, or depression was observed. All straw wattles and jute mesh were inspected to document their condition. Several sections of jute mesh were in poor condition, the remainder ranged from fair to good conditions. Straw wattles are generally in fair condition with two small sections in poor condition. One potentially new flow line less than 2 inches in depth was observed in the southwest area of the landfill.

The eastern two-thirds of the landfill cover did not show any evidence of erosion or soil loss, which indicates that the vegetation and ground cover in this area have effectively inhibited soil erosion (TetraTech, 2012). The western third of the landfill cover lacks adequate vegetation coverage, however there was no observed significant soil erosion, vegetation wash out, or silt deposition observed during this inspection period. In general, the cover provides adequate positive drainage.

4.3 Surface Water Management System Recommendations

The overall surface water drainage system generally complies with the landfill cover system performance criteria described in the PCIMP (TetraTech, 2004a). No areas were identified with cover washout or gullies (erosion deeper than 6 inches), slope deformation, failure of the surface drainage and sheet flow system, or significant persistent ponding during this inspection period (Figure 2).

The straw wattles and newer jute mesh are in good to fair condition with a few sections of each being in poor condition. It is recommended that they be inspected and replaced as needed prior to the next rainy season. The new flow line shall be addressed in the next maintenance event prior to the start of the 2015 rainy season by installing jute mesh. Otherwise, no recommendations for additional work (surface regrading) are proposed at this time.

5.0 LANDFILL SURVEY

This section provides the scope, data summary, and evaluation of landfill settlement.

5.1 Survey Scope

The scope of this survey is to identify and address settlement of the landfill as it relates to the performance of the cover system.

5.2 Summary of Field Observations

Routine visual inspections of the landfill were conducted in September 2014, December 2014, January 2015, May 2015, and July 2015. During the December 2014 and January 2015 post-rain event inspection, minor shallow ponding less than 2 inches in depth was observed in many locations. No ponding was observed in the May and July inspections and the areas of previous ponding did not show significant sloughing or deformation.

No major earthquakes, and no significant sloughing, dips, cover deformations, or other settlement features that could interfere with sheet flow drainage along the landfill cover occurred during this inspection period that would require a topographic survey by a licensed land surveyor.

5.3 Findings and Recommendations

No indications of settlement of the landfill cover were observed during this inspection period. Surface water runoff does not appear to be significantly impacted by any settlement features, sloughing, surface erosion, or cover deformations, and additional surface grading is not recommended at this time.

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6.0 ACCESS ROADS INSPECTION AND MAINTENANCE

This section addresses and describes observations made during the fall 2014 and winter 2015 inspections of the access roads.

6.1 Summary of Access Roads Observations

The unpaved access road along the western side of the landfill was found to be well-graded and in good condition. The access road is expected to continue to provide access to the site in all weather conditions. The access road along the western side of the site has been constructed using compacted aggregate and is considered adequate for providing the necessary safe access to the site in the event of an emergency or for maintenance equipment.

6.2 Findings and Recommendations

No unstable ground surfaces and no major erosion or loss of road base was observed on the access road along the west side of the landfill during the inspection period. No maintenance is recommended for the access road.

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7.0 SUMMARY OF RECOMMENDATIONS

This section summarizes the recommendations presented in the previous sections.

Overall the soil cover was observed to be intact and in stable condition. Minor erosion appears to be adequately mitigated with jute mesh and straw wattles. In addition, the areas impacted by burrowing rodents did not appear to increase in size during the inspection period, and several clusters are naturally being compacted. Vector control does not seem to be required at this time.

The eastern two-thirds of the landfill contains good vegetative cover and was found to satisfy the requirements of the PCIMP (TetraTech, 2004a) and project specifications. The patches of non-native iceplant reported from the previous season appears to have died off; however, there is more abundant non-native tumbleweed than in the previous season. The western third of the landfill cover does not have complete vegetation coverage (predominately 0-15 percent, with patches of greater vegetation coverage), but the lack of vegetation coverage does not appear to contribute to soil erosion. Due to the lack of rain in the 2014-2015 season, the established vegetation had thinned and browned at the edges, but it is expected to recover if there is good rainfall next season. Overall the landfill cover appears stable, and significant top soil erosion, significant fire hazards or dead vegetation were not observed during the inspection period. No recommendations for additional work are proposed at this time.

It is recommended that the inspection program continue to monitor for minor soil erosion and vegetation loss, and the maintenance program continue to ensure that the erosion control measures (jute mesh and straw wattles) remain in good condition.

The overall surface water drainage system complies with the landfill cover system performance criteria described in the PCIMP (TetraTech, 2004a). No areas were identified with cover washout or gullies (erosion deeper than 6 inches), slope deformation, failure of the surface drainage and sheet flow system, or significant persistent ponding during this inspection period. The existing jute mesh and straw wattles are located in areas identified in prior rain seasons as showing early signs of minor surface erosion, and they continue to function as intended to slow down surface sheet flow and help inhibit surface erosion.

No indications of settlement of the landfill cover were observed during this inspection period. Surface water runoff does not appear to be significantly impacted by any settlement features, sloughing, surface erosion, or cover deformations, and additional surface grading is not recommended at this time.

No unstable ground surfaces and no major erosion or loss of road base was observed on the access road along the west side of the landfill during the inspection period. No maintenance is recommended for the access road.

In summary, the soil cover is functioning adequately to isolate the buried waste from the surface, and the cover continues to provide adequate drainage. In addition, there has been no visible evidence of settlement or subsidence of the cover which could jeopardize the cover integrity.

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8.0 REFERENCES

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Figures

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IRP SITE 7 LANDFILL
SITE LOCATION MAP

NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

BRADY

DATE: Aug 27, 2013
FILE: SiteLocMap _130827

FIGURE: 1

DCN: RBAE-4801-0006-0011

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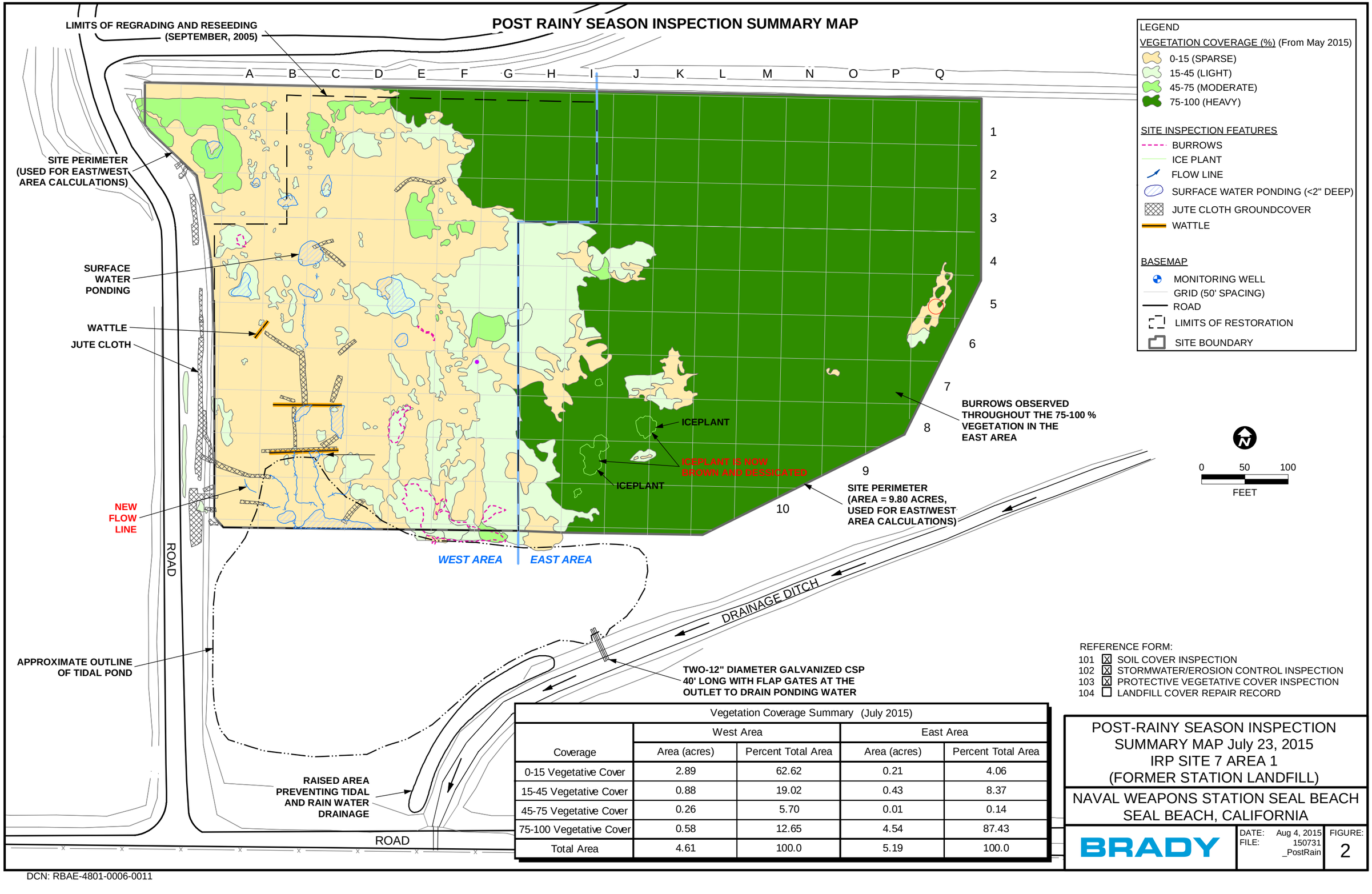
POST RAINY SEASON INSPECTION SUMMARY MAP



Vegetation Coverage Summary (July 2015)				
	West Area		East Area	
Coverage	Area (acres)	Percent Total Area	Area (acres)	Percent Total Area
0-15 Vegetative Cover	2.89	62.62	0.21	4.06
15-45 Vegetative Cover	0.88	19.02	0.43	8.37
45-75 Vegetative Cover	0.26	5.70	0.01	0.14
75-100 Vegetative Cover	0.58	12.65	4.54	87.43
Total Area	4.61	100.0	5.19	100.0

REFERENCE FORM:
101 ☒ SOIL COVER INSPECTION
102 ☒ STORMWATER/EROSION CONTROL INSPECTION
103 ☒ PROTECTIVE VEGETATIVE COVER INSPECTION
104 ☐ LANDFILL COVER REPAIR RECORD

POST-RAINY SEASON INSPECTION SUMMARY MAP July 23, 2015
IRP SITE 7 AREA 1
(FORMER STATION LANDFILL)

NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

BRADY

DATE: Aug 4, 2015
FILE: 150731 _PostRain

FIGURE: 2

DCN: RBAE-4801-0006-0011

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Appendix A

Inspection Report Forms and Figures

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Pre-Rain Season Inspection September 30, 2014

IRP Site 7 Landfill Inspection and Maintenance, NAVWPNSTA Seal Beach, CA

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FORM 101

SOIL COVER INSPECTION FORM

Type of Inspection: Pre-Rainy Season 2014-2015

Inspector Name: Timothy Shields, P.G. Jim Pierce

Affiliation (Name of Navy Consultant or Representative): Richard Brady and Associates (BRADY)

Date: 09/30/2014 Time: 11:00 a.m. Weather Conditions: Clear, sunny, moderate winds, 76° F

OBSERVATION TYPE AND DETAILED DESCRIPTION:

☐Erosion ☐Sloughing/Sliding ☐Cracks/Fissures ☐Subsidence/Depression ☐Evidence of Excessive Burrowing Rodents ☐Others

There has been minimal change in the signs of burrowing rodent activity from observations made during the July 2014 Post-Rainy Season inspection. One fresh cluster of burrows was observed in the central portion of the western 1/3rd of the landfill cover. The clusters observed during the previous site visits have not grown in size and do not appear to be active, many containing spider webs. No exposure of landfill material was observed.

No sloughing, sliding, subsidence or depression was observed. No new flow lines were observed.

LOCATION OF OBSERVATION (Shown on the attached Figure 2 and photographs):
In the western 1/3rd of the landfill cover, the fresh surface burrow holes were observed in a localized unvegetated area of the cover. The location of the fresh cluster of burrows observed in the central portion of the western 1/3rd of the landfill cover have been added to Figure 2. In the eastern 2/3rds of the landfill cover, where vegetation cover is predominately greater than 75%, old surface burrow holes and soil mounds were observed scattered throughout the entire area.

RECOMMENDATIONS:
Recommend continue filling old burrow holes and tamping soil mounds during subsequent inspection/monitoring events.

REMARKS: The straw wattles and jute mesh installed on the site were inspected to ensure they are continuing to function properly. All wattles and jute mesh are functioning properly. The older jute mesh is in fair condition. Areas of older jute mesh where incipient flow lines were developing were addressed with new jute mesh during a maintenance event immediately following this inspection. The straw wattles and newer jute mesh are in good to excellent condition.

Signature

Site Inspector/Engineer_____ Date: _9/30/2014_____

FORM 102

STORMWATER/EROSION CONTROL INSPECTION

Date: 09/30/2014 Name of Inspector/Engineer: Timothy Shields, P.G. and Jim Pierce.

Observations:

1. Ponding
2. Downstream Drainage Obstructions
3. Cover Washouts
4. Gully Erosion
5. Lack of Positive Drainage
6. Silt Deposition at Low Areas
7. Vegetation Washout

TYPE OF DEFICIENCY: None- no sloughing, sliding, subsidence or depression was observed. No new flow lines were observed. No ponding or wet surface soils were observed, including in the area along the southern boundary of the landfill cover that appears to be susceptible to occasional tidal ponding, where wet soils were reported during the July 2014 Post-Rainy Season Inspection. During the July 2014 inspection, a high tide of 4.91 feet was reported at nearby Los Patos bridge the previous night (July 22) at 8:13 p.m. For comparison, the high tide preceding this September 2014 inspection was 2.78 feet at 3:47 a.m., and a high tide of 4.15 feet occurred at 2:35 p.m. towards the end of the inspection.

LOCATION OF OBSERVATION (Show on the attached Figure 2): N/A

RECOMMENDATIONS: The straw wattles and jute mesh installed on the site were inspected to ensure they are continuing to function properly. All wattles and jute mesh are functioning properly. The older jute mesh is in fair condition. Areas of older jute mesh where incipient flow lines were developing were addressed with new jute mesh during a maintenance event immediately following this inspection. The straw wattles and newer jute mesh are in good to excellent condition.

COMMENTS: None.

Signature

Site Inspector/Engineer_____ Date: _9/30/2014_____

FORM 103

PROTECTIVE VEGETATIVE COVER INSPECTION

Location: IRP Site 7 Landfill Date and Time: 09/30/2014 11:00 a.m.

Boundary Roads: Good, stable, and dry Inspector: Timothy Shields, P.G. and Jim Pierce

General Soil Condition: Wet_____ Dry __X___ Weather: Clear, sunny, moderate winds, 76° F

ITEM	COMMENTS	RECOMMENDATIONS
Vegetation Cover	- In the western 1/3rd of landfill: 2.76 acres covered by 0-15% vegetation. 1.09 acres covered by 15-45% vegetation. 0.19 acres covered by 45-75% vegetation. 0.57 acres covered by 75-100% vegetation. - In the eastern 2/3rds of the landfill: 0.21 acres covered by 0-15% vegetation. 0.43 acres covered by 15-45% vegetation. 0.01 acres covered by 45-75% vegetation. 4.54 acres covered by 75-100% vegetation.	The total area covered by vegetation has decreased, likely due to the lack of precipitation during the previous months. Vegetation cover should increase during the rainy season. Recommend continuing the inspection program.
Shrubs	Present in eastern 2/3rds of the landfill cover.	None
Vegetation Loss with Soil Erosion	Not apparent	None
Non-native Plants	Two patches of ice-plant were observed, in poor, dry condition. Some tumbleweeds were observed growing in eastern 2/3rd of the landfill cover.	Continue to monitor.
Fire Hazard, Dead Vegetation, and Deep Rooted Plants	Established vegetation in western 1/3rd was generally dry and brown, similar to vegetation observed outside the landfill cover to the north Some green vegetation was observed intermingled with the dry, brown vegetation.	None

Signature

Site Inspector/Engineer_____ Date: _9/30/2014_____

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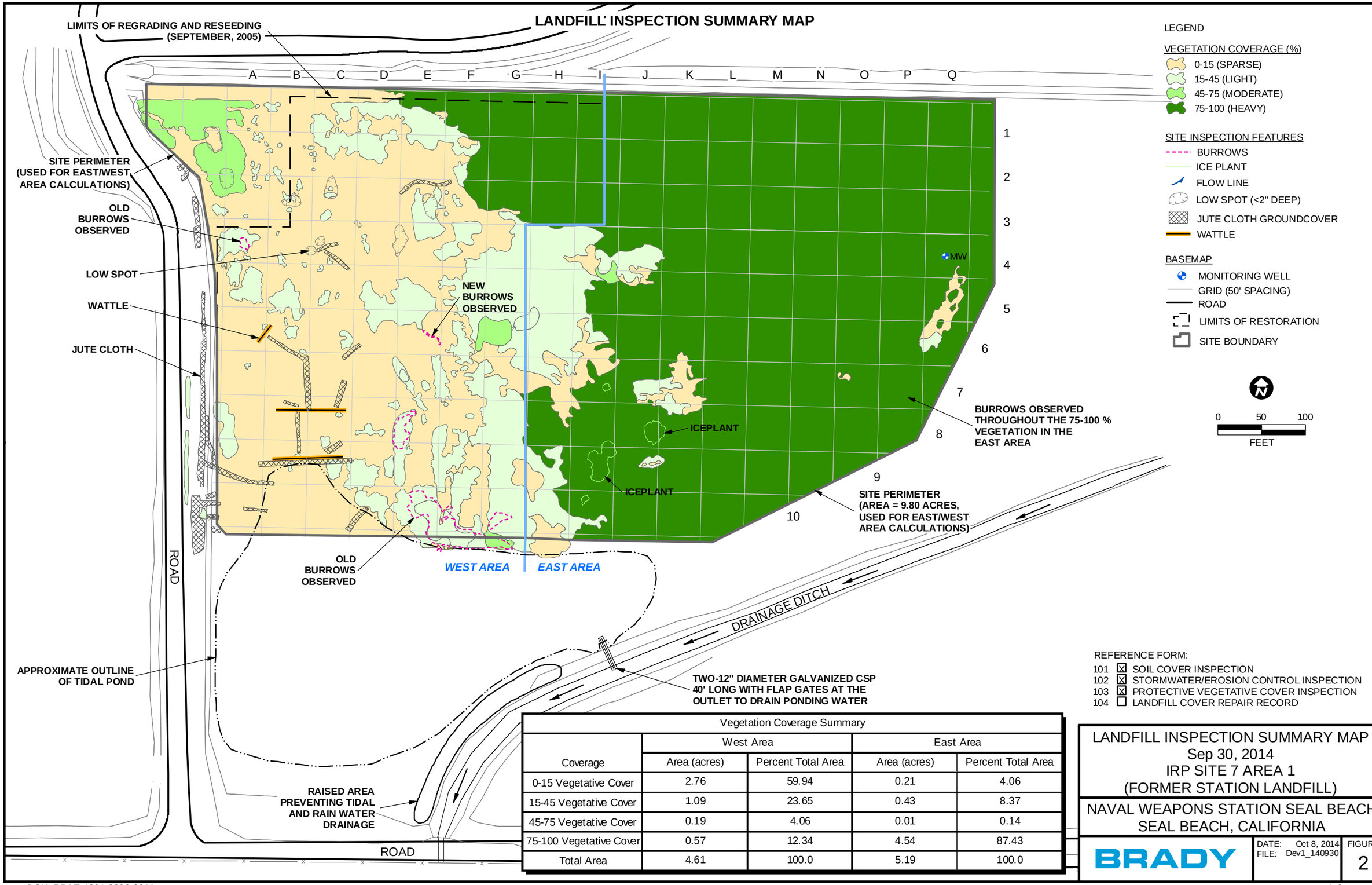
LANDFILL INSPECTION SUMMARY MAP



REFERENCE FORM:

101 ☒ SOIL COVER INSPECTION
102 ☒ STORMWATER/EROSION CONTROL INSPECTION
103 ☒ PROTECTIVE VEGETATIVE COVER INSPECTION
104 ☐ LANDFILL COVER REPAIR RECORD

Vegetation Coverage Summary

Coverage	West Area		East Area	
	Area (acres)	Percent Total Area	Area (acres)	Percent Total Area
0-15 Vegetative Cover	2.76	59.94	0.21	4.06
15-45 Vegetative Cover	1.09	23.65	0.43	8.37
45-75 Vegetative Cover	0.19	4.06	0.01	0.14
75-100 Vegetative Cover	0.57	12.34	4.54	87.43
Total Area	4.61	100.0	5.19	100.0

LANDFILL INSPECTION SUMMARY MAP
Sep 30, 2014
IRP SITE 7 AREA 1
(FORMER STATION LANDFILL)

NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

BRADY

DATE: Oct 8, 2014
FILE: Dev1_140930

FIGURE: 2

DCN: RBAE-4801-0006-0011

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Maintenance Event September 30, 2014

IRP Site 7 Landfill Inspection and Maintenance, NAVWPNSTA Seal Beach, CA

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FORM 104

LANDFILL COVER REPAIR RECORD

Maintenance Engineer: Tim Shields, P.G. and Jim Pierce Date: 09/30/2014 Time: 2:00 p.m.

Affiliation: Richard Brady & Associates

DEFICIENCY TYPE AND DETAILED DESCRIPTION:

☐Erosion ☐Sloughing/Sliding ☐Cracks/Fissures ☐Subsidence/Depression ☐Other

As recommended in the July 23, 2014 Inspection Report, sections of older jute mesh were inspected. In areas of older jute mesh where incipient flow lines were developing, new jute mesh was added to inhibit the further development of the flow lines.

LOCATION OF REPAIR ACTIVITY:
Western 1/3 of landfill cover (see attached photos).

REPAIR ACTION TAKEN (refer to repair detail or design drawing as appropriate):
Areas of older jute mesh where incipient flow lines were developing were addressed with new jute mesh. Approximately 75 feet of jute mesh (4 feet wide) was used.

ATTACHMENTS (as-built drawings, compaction reports, etc. as appropriate): See Figure 2 for locations where new jute mesh was added.

COMMENTS:

None.

Signature

Site Inspector/Engineer _____ Date: 10/16/2014

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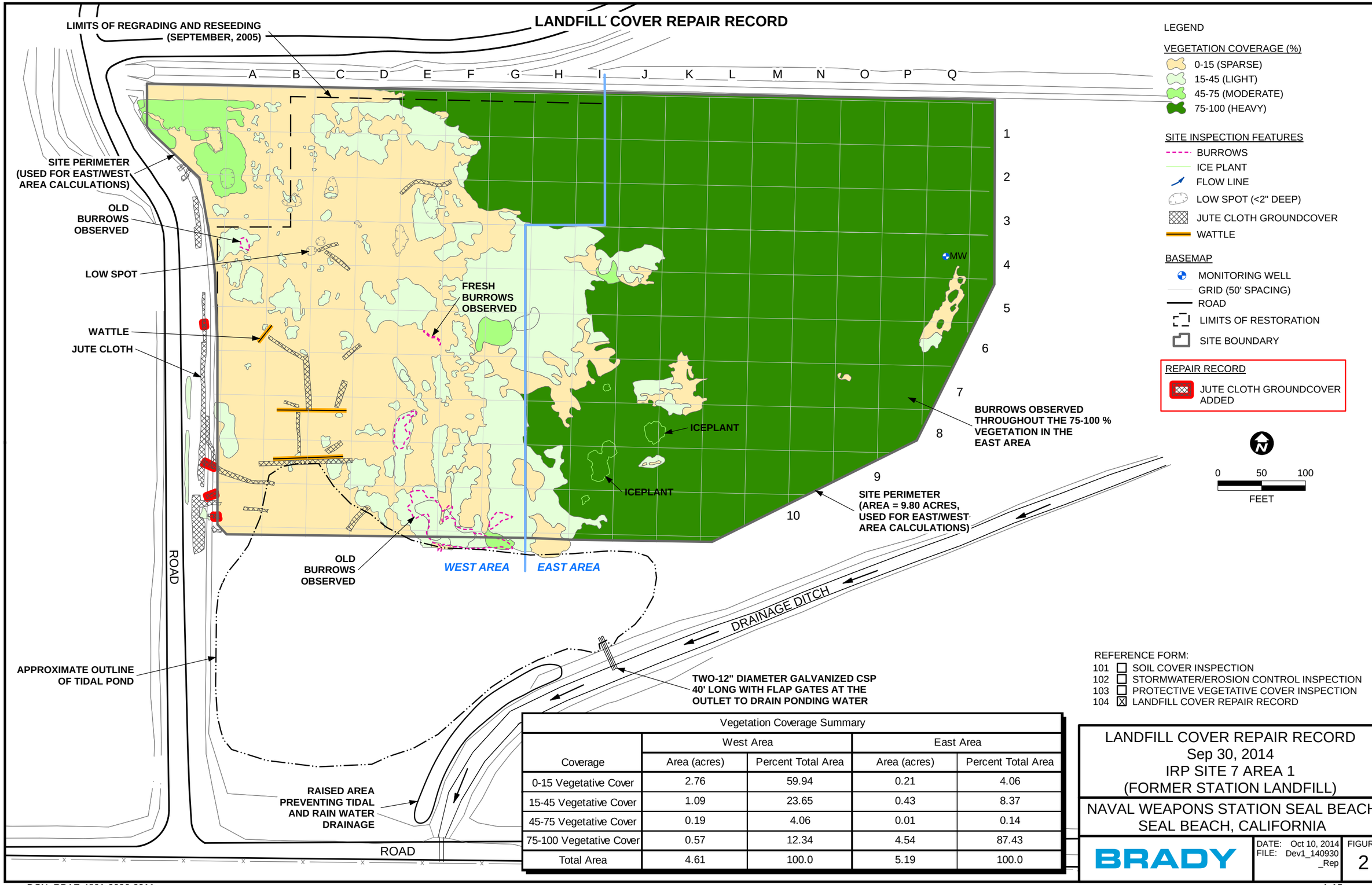
LANDFILL COVER REPAIR RECORD



LEGEND

VEGETATION COVERAGE (%)
- 0-15 (SPARSE)
- 15-45 (LIGHT)
- 45-75 (MODERATE)
- 75-100 (HEAVY)

SITE INSPECTION FEATURES
- BURROWS
- ICE PLANT
- FLOW LINE
- LOW SPOT (<2" DEEP)
- JUTE CLOTH GROUNDCOVER
- WATTLE

BASEMAP
- MONITORING WELL
- GRID (50' SPACING)
- ROAD
- LIMITS OF RESTORATION
- SITE BOUNDARY

REPAIR RECORD
- JUTE CLOTH GROUNDCOVER ADDED

0 50 100
FEET

REFERENCE FORM:
101 ☐ SOIL COVER INSPECTION
102 ☐ STORMWATER/EROSION CONTROL INSPECTION
103 ☐ PROTECTIVE VEGETATIVE COVER INSPECTION
104 ☒ LANDFILL COVER REPAIR RECORD

Vegetation Coverage Summary

Coverage	West Area		East Area	
	Area (acres)	Percent Total Area	Area (acres)	Percent Total Area
0-15 Vegetative Cover	2.76	59.94	0.21	4.06
15-45 Vegetative Cover	1.09	23.65	0.43	8.37
45-75 Vegetative Cover	0.19	4.06	0.01	0.14
75-100 Vegetative Cover	0.57	12.34	4.54	87.43
Total Area	4.61	100.0	5.19	100.0

LANDFILL COVER REPAIR RECORD
Sep 30, 2014
IRP SITE 7 AREA 1
(FORMER STATION LANDFILL)

NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

BRADY

DATE: Oct 10, 2014
FILE: Dev1_140930 _Rep

FIGURE: 2

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Post-Rain Inspection December 4, 2014

IRP Site 7 Landfill Inspection and Maintenance, NAVWPNSTA Seal Beach, CA

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FORM 101

SOIL COVER INSPECTION FORM

Type of Inspection: Post-Rain Event Inspection

Inspector Name: Timothy Shields, P.G. Jim Pierce

Affiliation (Name of Navy Consultant or Representative): Richard Brady and Associates (BRADY)

Date: 12/4/2014 Time: 11:15 a.m. Weather Conditions: Mostly cloudy, moderate winds, 68° F

OBSERVATION TYPE AND DETAILED DESCRIPTION:

☐Erosion ☐Sloughing/Sliding ☐Cracks/Fissures ☐Subsidence/Depression ☐Evidence of Excessive Burrowing Rodents ☐Others

The surface soil across the entire landfill cover was saturated and very soft. No sloughing, sliding, subsidence or depression was observed. No new flow lines were observed. Please see Form 102 for additional observations regarding stormwater and erosion controls.

There has been minimal change in the signs of burrowing rodent activity from observations made during the September 2014 Pre-Rainy Season inspection.

LOCATION OF OBSERVATION
Shown on the attached Figure 2 and photographs

RECOMMENDATIONS:
None at this time.

REMARKS:
The straw wattles and jute mesh installed on the site were inspected to ensure they are continuing to function properly. All wattles and jute mesh are in good condition and functioning properly.

Signature

Site Inspector/Engineer_____ Date: _12/10/2014_____

FORM 102

STORMWATER/EROSION CONTROL INSPECTION

Date: 12/04/2014 Name of Inspector/Engineer: Timothy Shields, P.G. and Jim Pierce

Observations:

1. **Ponding**
2. Downstream Drainage Obstructions
3. Cover Washouts
4. Gully Erosion
5. Lack of Positive Drainage
6. Silt Deposition at Low Areas
7. Vegetation Washout

This post-rain inspection was scheduled to assess the impact of the rain that fell from November 30 through December 4, 2014. The rainfall event as reported by Weather Underground (wunderground.com) for Los Alamitos Army Airfield, located approximately 4 miles north of the Site 7 Former Station Landfill, is summarized as follows:

Date	Precipitation (Inches)
November 30	0.07
December 1	0.02
December 2	0.93
December 3	0.80
December 4	0.01
Total:	**1.83**

On the day of the inspection, a high tide of 5.42 feet was reported at nearby Los Patos bridge at 8:06 a.m.

TYPE OF DEFICIENCY:

Ponding was observed in the western 1/3 of the landfill. The perimeters of the ponds were mapped using global positioning system (GPS). The ponds were approximately 2 inches deep or less.

As shown on Figure 2, 14 ponds were observed in the western 1/3rd of the landfill cover, generally ranging in size from 10 to 40 feet across. One of the ponds near the central west edge was notably larger, with dimensions of approximately 30 by 120 feet. This pond was shallow and drained from its eastern edge, along the drainage where a wattle and jute mesh had been installed. The wattle and jute mesh were effective in preventing erosion from the pond drainage. Ponding was also observed along the southern boundary of the landfill cover, which appears to be an extension of the adjacent tidal pond No cracks or fissures in or around the areas of ponding.

As shown on Figure 2, in general the ponds were partially co-located with previously mapped areas of established but dormant vegetation.

No erosion or significant silt deposition was observed. No sloughing, sliding, or subsidence was observed. No new flow lines were observed.

FORM 102

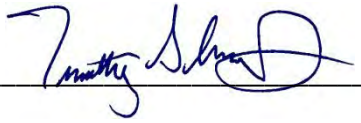
STORMWATER/EROSION CONTROL INSPECTION

LOCATION OF OBSERVATION (Show on the attached Figure A-1): The areas of ponding observed are indicated on Figure 2.

RECOMMENDATIONS: The straw wattles and jute mesh installed on the site were inspected to ensure they are continuing to function properly. All wattles and jute mesh are functioning properly. No action is required at this time. Recommend continued monitoring as planned, particularly with respect to evaluating whether the ponding is beneficial or detrimental to vegetation growth.

COMMENTS: None.

Signature

Site Inspector/Engineer  Date: 12/10/2014

FORM 103

PROTECTIVE VEGETATIVE COVER INSPECTION

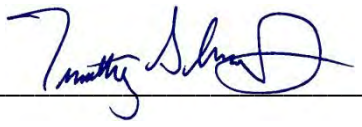
Location: IRP Site 7 Landfill Date and Time: 12/04/2014 11:15 a.m.

Boundary Roads: Good, stable. Wet from rain. Inspector: Timothy Shields, P.G. and Jim Pierce

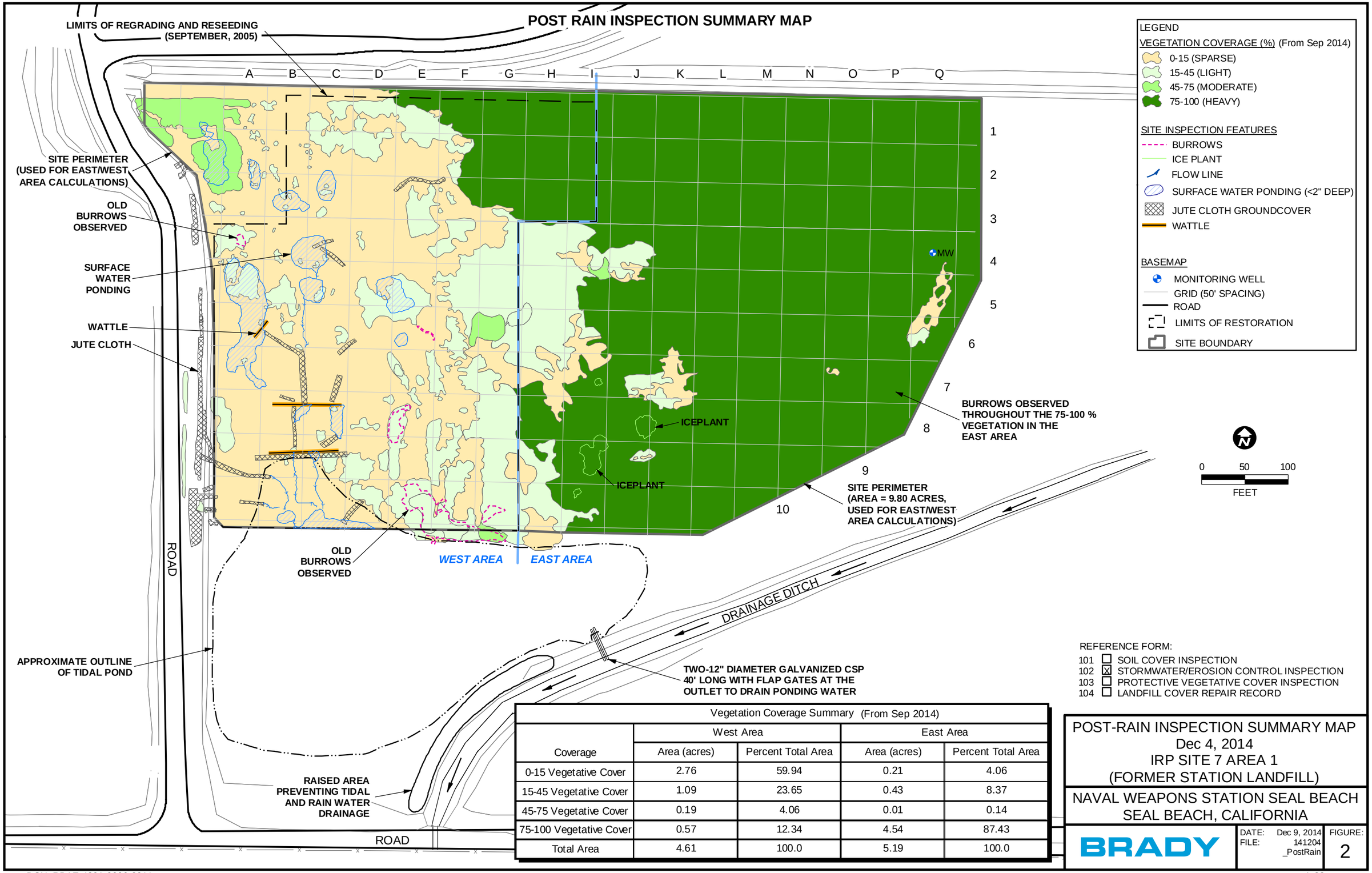
General Soil Condition: Wet X Dry Weather: Mostly cloudy, moderate winds, 68° F

ITEM	COMMENTS	RECOMMENDATIONS
Vegetation Cover	Vegetation was dormant and mostly brown, with approximately the same coverage as observed during the pre-rain season inspection on September 30, 2014.	The total area covered by vegetation has remained steady, likely due to the lack of precipitation during the previous months. Vegetation cover should increase during the rainy season. Recommend continuing the inspection program.
Shrubs	Present in eastern 2/3rds of the landfill cover.	None
Vegetation Loss with Soil Erosion	Not apparent	None
Non-native Plants	Patches of ice-plant were observed in locations noted during previous inspections.	Continue to monitor.
Fire Hazard, Dead Vegetation, and Deep Rooted Plants	Established vegetation in western 1/3rd was generally brown, similar to vegetation observed outside the landfill cover to the north. All vegetation was wet due to the rain.	None

Signature

Site Inspector/Engineer  Date: 12/10/2014

POST RAIN INSPECTION SUMMARY MAP



REFERENCE FORM:

101 ☐ SOIL COVER INSPECTION
102 ☒ STORMWATER/EROSION CONTROL INSPECTION
103 ☐ PROTECTIVE VEGETATIVE COVER INSPECTION
104 ☐ LANDFILL COVER REPAIR RECORD

Vegetation Coverage Summary (From Sep 2014)

Coverage	West Area		East Area	
	Area (acres)	Percent Total Area	Area (acres)	Percent Total Area
0-15 Vegetative Cover	2.76	59.94	0.21	4.06
15-45 Vegetative Cover	1.09	23.65	0.43	8.37
45-75 Vegetative Cover	0.19	4.06	0.01	0.14
75-100 Vegetative Cover	0.57	12.34	4.54	87.43
Total Area	4.61	100.0	5.19	100.0

POST-RAIN INSPECTION SUMMARY MAP
Dec 4, 2014
IRP SITE 7 AREA 1
(FORMER STATION LANDFILL)

NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

BRADY

DATE: Dec 9, 2014
FILE: 141204 _PostRain

FIGURE: 2

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Post-Rain Inspection
January 14, 2015

IRP Site 7 Landfill Inspection and Maintenance, NAVWPNSTA Seal Beach, CA

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FORM 101

SOIL COVER INSPECTION FORM

Type of Inspection: Post-Rain Event Inspection

Inspector Name: Timothy Shields, P.G.

Affiliation (Name of Navy Consultant or Representative): Richard Brady and Associates (BRADY)

Date: 1/14/2015 Time: 12:30 p.m. Weather Conditions: Clear, moderate winds, 75° F

OBSERVATION TYPE AND DETAILED DESCRIPTION:

☐Erosion ☐Sloughing/Sliding ☐Cracks/Fissures ☐Subsidence/Depression ☐Evidence of Excessive Burrowing Rodents ☐Others

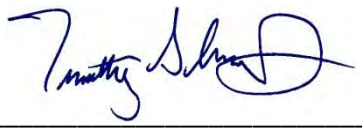
The surface soil across the entire landfill cover was saturated and very soft. No sloughing, sliding, subsidence or depression was observed. No new flow lines were observed. Please see Form 102 for additional observations regarding stormwater and erosion controls.

LOCATION OF OBSERVATION
Western 1/3rd of landfill.

RECOMMENDATIONS:
None at this time.

REMARKS:
The straw wattles and jute mesh installed on the site were inspected to ensure they are continuing to function properly. All wattles and jute mesh are in good condition and functioning properly.

Signature



Site Inspector/Engineer_____ Date: _1/14/2015_____

FORM 102

STORMWATER/EROSION CONTROL INSPECTION

Date: 1/14/2015 Name of Inspector/Engineer: Timothy Shields, P.G.

Observations:

1. **Ponding**
2. Downstream Drainage Obstructions
3. Cover Washouts
4. Gully Erosion
5. Lack of Positive Drainage
6. Silt Deposition at Low Areas
7. Vegetation Washout

This post-rain inspection was scheduled to assess the impact of the rain that fell from January 10 and 11, 2015. The rainfall event as reported by Weather Underground (wunderground.com) for Los Alamitos Army Airfield, located approximately 4 miles north of the Site 7 Former Station Landfill, is summarized as follows:

Date	Precipitation (Inches)
January 10	0.34
January 11	0.59
Total:	**0.93**

TYPE OF DEFICIENCY:

Ponding was observed in the western 1/3 of the landfill, similar in location and extent to those reported in detail in the report of the December 4, 2014, post-rain inspection. The ponds were approximately 2 inches deep or less.

Ponds were observed in the western 1/3rd of the landfill cover. One of the ponds near the central west edge was notably larger. This pond was shallow and drained from its eastern edge, along the drainage where a wattle and jute mesh had been installed. The wattle and jute mesh were effective in preventing erosion from the pond drainage. No cracks or fissures in or around the areas of ponding.

In general the ponds were partially co-located with previously mapped areas of established but dormant vegetation.

No erosion or significant silt deposition was observed. No sloughing, sliding, or subsidence was observed. No new flow lines were observed.

LOCATION OF OBSERVATION: Western 1/3rd of landfill.

RECOMMENDATIONS: The straw wattles and jute mesh installed on the site were inspected to ensure they are continuing to function properly. All wattles and jute mesh are functioning properly. No action is required at this time. Recommend continued monitoring as planned, particularly with respect to evaluating whether the ponding is beneficial or detrimental to vegetation growth.

COMMENTS: None.

FORM 102

STORMWATER/EROSION CONTROL INSPECTION

Signature

Site Inspector/Engineer_____ Date: 1/14/2015

FORM 103

PROTECTIVE VEGETATIVE COVER INSPECTION

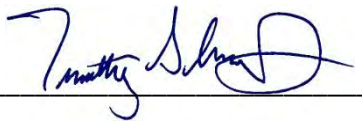
Location: IRP Site 7 Landfill Date and Time: 1/14/2015 12:30 p.m.

Boundary Roads: Good, stable. Wet from rain. Inspector: Timothy Shields, P.G.

General Soil Condition: Wet X Dry _____ Weather: Clear, moderate winds, 75° F

ITEM	COMMENTS	RECOMMENDATIONS
Vegetation Cover	Vegetation was dormant and mostly brown, with approximately the same coverage as observed during the post-rain inspection on December 4, 2014.	The total area covered by vegetation has remained steady, likely due to the lack of precipitation during the previous months. Vegetation cover should increase during the rainy season. Recommend continuing the inspection program.
Shrubs	Present in eastern 2/3rds of the landfill cover.	None
Vegetation Loss with Soil Erosion	Not apparent	None
Non-native Plants	Patches of ice-plant were observed in locations noted during previous inspections.	Continue to monitor.
Fire Hazard, Dead Vegetation, and Deep Rooted Plants	Established vegetation in western 1/3rd was generally brown, similar to vegetation observed outside the landfill cover to the north. All vegetation was wet due to the rain.	None

Signature

Site Inspector/Engineer  Date: 1/14/2015

Post-Rain Inspection
May 20, 2015

IRP Site 7 Landfill Inspection and Maintenance, NAVWPNSTA Seal Beach, CA

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FORM 101

SOIL COVER INSPECTION FORM

Type of Inspection: Post-Rain Event Inspection

Inspector Name: Timothy Shields, P.G. Jim Pierce

Affiliation (Name of Navy Consultant or Representative): Richard Brady and Associates (BRADY)

Date: 05/20/2015 Time: 10:45 a.m. Weather Conditions: Mostly cloudy, 65° F

OBSERVATION TYPE AND DETAILED DESCRIPTION:

☐Erosion ☐Sloughing/Sliding ☐Cracks/Fissures ☐Subsidence/Depression ☐Evidence of Excessive Burrowing Rodents ☐Others

The surface soil across the entire landfill cover was firm and no ponding was observed. No sloughing, sliding, subsidence or depression was observed. One new flow line less than 2 inches deep was observed in the southwest area.

There has been minimal change in the signs of burrowing rodent activity from observations made during the December 2014 Post-Rain Event and September 2014 Pre-Rainy Season inspections. One fresh large burrow was mapped and photographed in the Western ½ of the landfill.

LOCATION OF OBSERVATION
Shown on the attached Figure 2 and photographs.

RECOMMENDATIONS:
None at this time.

REMARKS:
The straw wattles and jute mesh installed on the site were inspected to ensure they are continuing to function properly. Please see Form 102 for additional observations regarding stormwater and erosion controls.

Signature

Site Inspector/Engineer_____ Date: _5/20/2015_____

FORM 102

STORMWATER/EROSION CONTROL INSPECTION

Date: 05/20/2015 Name of Inspector/Engineer: Timothy Shields, P.G. and Jim Pierce

Observations:

1. Ponding
2. Downstream Drainage Obstructions
3. Cover Washouts
4. Gully Erosion
5. Lack of Positive Drainage
6. Silt Deposition at Low Areas
7. Vegetation Washout

This post-rain inspection was scheduled to assess the impact of the rain that fell from May 14 through May 15, 2015. The rainfall event as reported by Weather Underground (wunderground.com) for Los Alamitos Army Airfield, located approximately 4 miles north of the Site 7 Former Station Landfill, is summarized as follows:

Date	Precipitation (Inches)
May 14	0.44
May 15	0.32
Total:	**0.76**

On the day of the inspection, a high tide of 3.3 feet was reported for nearby Los Patos bridge at 1:23 p.m.

TYPE OF DEFICIENCY:

No deficiencies were observed. There was no ponding on the site, no washouts, and no significant erosion or silt deposition. No sloughing, sliding, or subsidence was observed. Only one new flow line, less than 2 inches deep, was observed in the southwest area.

LOCATION OF OBSERVATION (Show on the attached Figure A-1): The areas of ponding observed are indicated on Figure 2.

RECOMMENDATIONS: The straw wattles and jute mesh installed on the site were inspected to ensure they are continuing to function properly. All wattles and jute mesh are functioning properly. Most jute mesh is in fair condition, some is in poor condition. Straw wattles are in good condition. No action is required at this time. It is recommended to inspect and replace wattles and jute mesh as needed after the summer and prior to the next rainy season.

COMMENTS: None.

Signature

Site Inspector/Engineer  Date: 5/20/2015

FORM 103

PROTECTIVE VEGETATIVE COVER INSPECTION

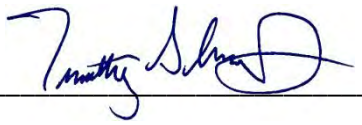
Location: IRP Site 7 Landfill Date and Time: 05/20/2015 10:45 a.m.

Boundary Roads: Good, stable. Inspector: Timothy Shields, P.G. and Jim Pierce

General Soil Condition: Wet X Dry Weather: Mostly cloudy, 65° F

ITEM	COMMENTS	RECOMMENDATIONS
Vegetation Cover	Most of the established vegetation patches in the western 1/3rd of the landfill cover had robust fresh growth, including areas that were ponded during the December 2015 Post-Rain inspection event. Vegetation in the eastern 2/3rds of the landfill was in good condition. Spring grasses in the eastern 2/3rds of the landfill had turned brown.	Vegetation cover should remain steady or decrease slightly during the dry summer months. Recommend continuing the inspection program.
Shrubs	Present in eastern 2/3rds of the landfill cover.	None
Vegetation Loss with Soil Erosion	Not apparent.	None
Non-native Plants	Patches of ice-plant were observed in locations noted during previous inspections. Iceplant was mostly dead or in poor condition.	Continue to monitor.
Fire Hazard, Dead Vegetation, and Deep Rooted Plants	Established vegetation in western 1/3rd was generally brown, similar to vegetation observed outside the landfill cover to the north. All vegetation was wet due to the rain.	None

Signature

Site Inspector/Engineer  Date: 5/20/2015

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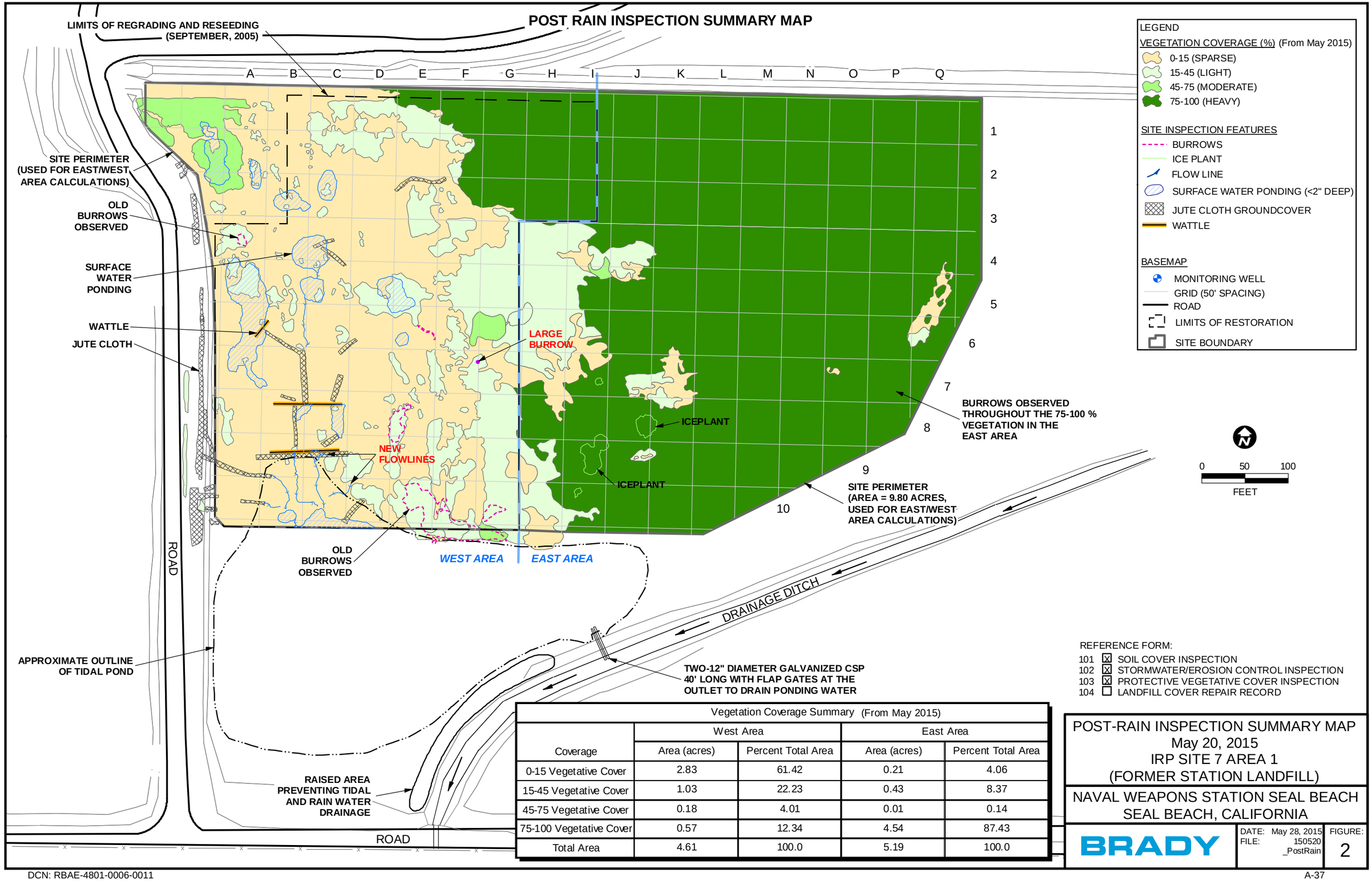
POST RAIN INSPECTION SUMMARY MAP



Vegetation Coverage Summary (From May 2015)

Coverage	West Area		East Area	
	Area (acres)	Percent Total Area	Area (acres)	Percent Total Area
0-15 Vegetative Cover	2.83	61.42	0.21	4.06
15-45 Vegetative Cover	1.03	22.23	0.43	8.37
45-75 Vegetative Cover	0.18	4.01	0.01	0.14
75-100 Vegetative Cover	0.57	12.34	4.54	87.43
Total Area	4.61	100.0	5.19	100.0

REFERENCE FORM:

101 ☒ SOIL COVER INSPECTION
102 ☒ STORMWATER/EROSION CONTROL INSPECTION
103 ☒ PROTECTIVE VEGETATIVE COVER INSPECTION
104 ☐ LANDFILL COVER REPAIR RECORD

POST-RAIN INSPECTION SUMMARY MAP
May 20, 2015
IRP SITE 7 AREA 1
(FORMER STATION LANDFILL)

NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

BRADY

DATE: May 28, 2015
FILE: 150520 _PostRain

FIGURE: 2

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Post-Rainy Season Inspection July 23, 2015

IRP Site 7 Landfill Inspection and Maintenance, NAVWPNSTA Seal Beach, CA

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FORM 101

SOIL COVER INSPECTION FORM

Type of Inspection: Post-Rainy Season 2015

Inspector Name: Timothy Shields, P.G. Jim Pierce

Affiliation (Name of Navy Consultant or Representative): Richard Brady and Associates (BRADY)

Date: 07/23/2015 Time: 10:00 a.m. Weather Conditions: Overcast, 75° F

OBSERVATION TYPE AND DETAILED DESCRIPTION:

☐Erosion ☐Sloughing/Sliding ☐Cracks/Fissures ☐Subsidence/Depression ☐Evidence of Excessive Burrowing Rodents ☐Others

Note that a rainfall event on 7/18 – 7/19 resulted in 0.4 inches of rainfall.

The surface soil across the entire landfill cover was soft to firm and moist to wet.

There has been no change in the signs of burrowing rodent activity from observations made during the May 2015. The single fresh burrow was observed during May site visit appeared inactive and contained a spider web, as did the burrows observed during the previous site visits. No exposure of landfill material was observed.

No sloughing, sliding, subsidence or depression was observed. One potentially new flow line less than 2 inches in depth was observed in the southwest area of the landfill.

LOCATION OF OBSERVATION (Shown on the attached Figure 2):

In the western 1/3rd of the landfill cover, old surface burrow holes and soil mounds were confined to the vegetated areas of the cover. In the eastern 2/3rds of the landfill cover, where vegetation cover is predominately greater than 75%, old surface burrow holes and soil mounds were observed scattered throughout the entire area. The approximate locations of the largest clusters of burrows and soil mounds observed in the western 1/3rd of the landfill cover are indicated on Figure 2.

RECOMMENDATIONS:
Recommend filling old burrow holes and tamping soil mounds as needed during the next maintenance event.

REMARKS: The straw wattles and jute mesh installed on the site were inspected to ensure they are continuing to function properly. All wattles and jute mesh are functioning properly. The older jute mesh will need replacement prior to next rainy season.

Signature

Site Inspector/Engineer_____ Date: _7/30/2015_____

FORM 102

STORMWATER/EROSION CONTROL INSPECTION

Date: 07/23/2015 Name of Inspector/Engineer: Timothy Shields, P.G. and Jim Pierce.

Observations:

1. Ponding
2. Downstream Drainage Obstructions
3. Cover Washouts
4. Gully Erosion
5. Lack of Positive Drainage
6. Silt Deposition at Low Areas
7. Vegetation Washout

TYPE OF DEFICIENCY: None- no sloughing, sliding, subsidence, cracking, or depression was observed. One potentially new flow line less than 2 inches in depth was observed in the southwest area of the landfill. Note that a rainfall event on 7/18 – 7/19 resulted in 0.4 inches of rainfall.

All straw wattles and jute mesh were inspected to document their condition. Several sections of jute mesh were in poor condition, the remainder ranged from fair to good conditions. Straw wattles are generally in fair condition with two small sections in poor condition.

LOCATION OF OBSERVATION (Shown on the attached Figure 2): Straw wattles, jute mesh, and areas prone to ponding are depicted on the Figure.

RECOMMENDATIONS: A maintenance event is recommended prior to the next rainy season. The wattles and jute mesh should be reinspected and all that are in poor condition should be replaced prior to the currently-forecast El Nino rainy season.

COMMENTS: None.

Signature

Site Inspector/Engineer_____ Date: _7/30/2015_____

FORM 103

PROTECTIVE VEGETATIVE COVER INSPECTION

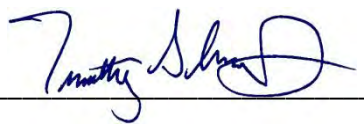
Location: IRP Site 7 Landfill Date and Time: 07/23/2015 10:00 a.m.

Boundary Roads: Good, stable, and damp. Inspector: Timothy Shields, P.G. , and Jim Pierce.

General Soil Condition: Wet_____ Dry ____X_____ Weather: Overcast, 75° F _____

ITEM	COMMENTS	RECOMMENDATIONS
Vegetation Cover	- In the western 1/3rd of landfill: 2.89 acres covered by 0-15% vegetation. 0.88 acres covered by 15-45% vegetation. 0.26 acres covered by 45-75% vegetation. 0.58 acres covered by 75-100% vegetation. In general, established vegetation patches are approximately 30% green, 70% brown. No new vegetation was observed. The green vegetation is in good condition. - In the eastern 2/3rds of the landfill: 0.21 acres covered by 0-15% vegetation. 0.43 acres covered by 15-45% vegetation. 0.01 acres covered by 45-75% vegetation. 4.54 acres covered by 75-100% vegetation. Grasses are now brown. Other vegetation is approximately 50% brown, green vegetation is in good condition.	The total area covered by vegetation has decreased, likely due to the lack of precipitation during the previous months. Vegetation cover should increase during currently-forecast El Nino rainy season. Recommend continuing the inspection program.
Shrubs	Present in eastern 2/3rds of the landfill cover.	None
Vegetation Loss with Soil Erosion	Not apparent	None
Non-native Plants	The two patches of ice-plant previously observed were brown and dessicated. Tumbleweeds were observed growing in eastern 2/3 rd of the landfill cover.	Continue to monitor.
Fire Hazard, Dead Vegetation, and Deep Rooted Plants	Established vegetation in western 1/3rd appears in fair condition, browning on the edges.	None

Signature

Site Inspector/Engineer  Date: _7/30/2015_____

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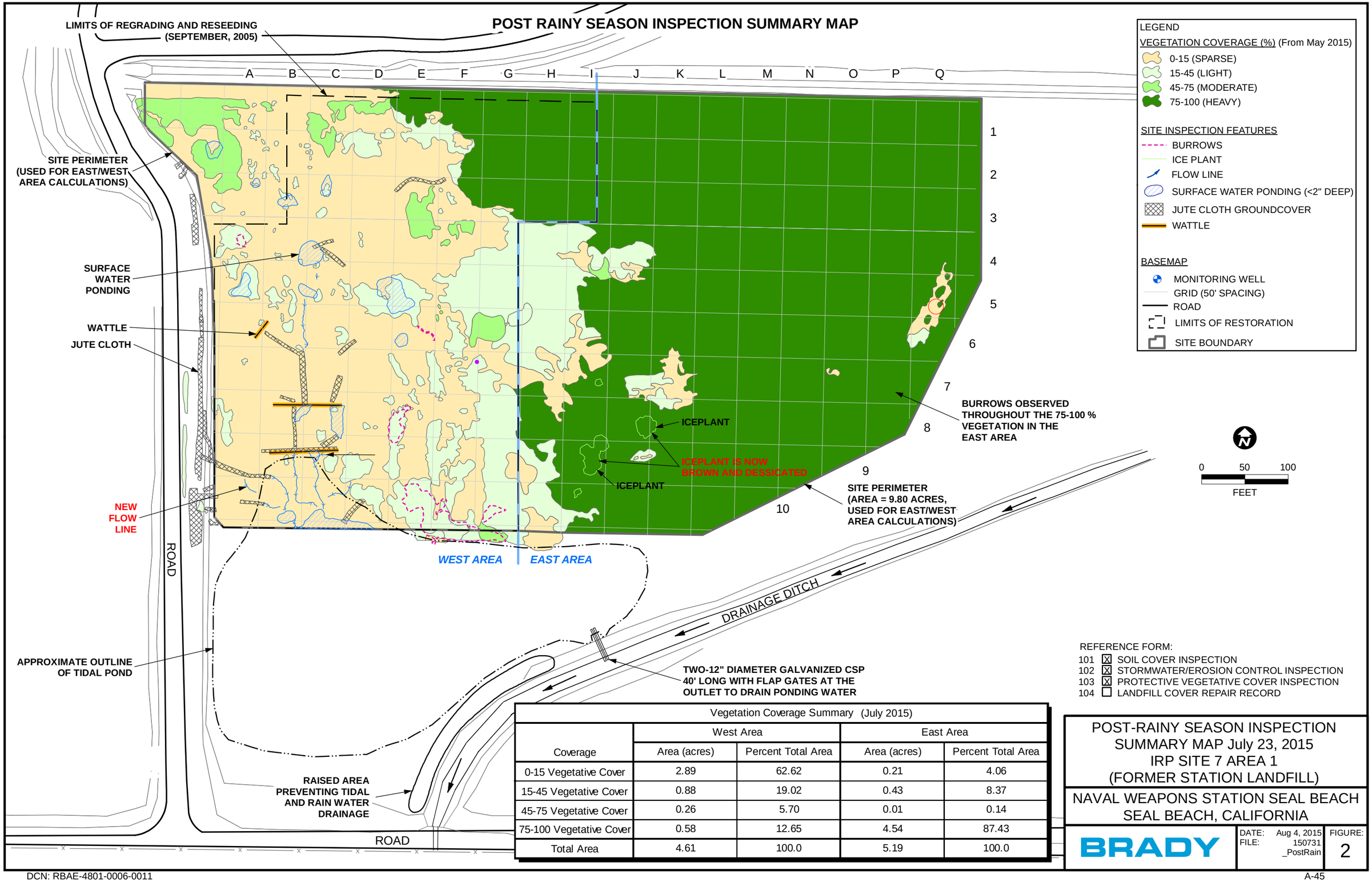
POST RAINY SEASON INSPECTION SUMMARY MAP



Vegetation Coverage Summary (July 2015)				
	West Area		East Area	
Coverage	Area (acres)	Percent Total Area	Area (acres)	Percent Total Area
0-15 Vegetative Cover	2.89	62.62	0.21	4.06
15-45 Vegetative Cover	0.88	19.02	0.43	8.37
45-75 Vegetative Cover	0.26	5.70	0.01	0.14
75-100 Vegetative Cover	0.58	12.65	4.54	87.43
Total Area	4.61	100.0	5.19	100.0

REFERENCE FORM:
101 ☒ SOIL COVER INSPECTION
102 ☒ STORMWATER/EROSION CONTROL INSPECTION
103 ☒ PROTECTIVE VEGETATIVE COVER INSPECTION
104 ☐ LANDFILL COVER REPAIR RECORD

POST-RAINY SEASON INSPECTION SUMMARY MAP July 23, 2015
IRP SITE 7 AREA 1
(FORMER STATION LANDFILL)

NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

BRADY

DATE: Aug 4, 2015
FILE: 150731 _PostRain

FIGURE: 2

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Appendix B

Inspection Photo Logs

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Pre-Rain Season Inspection September 30, 2014

IRP Site 7 Landfill Inspection and Maintenance, NAVWPNSTA Seal Beach, CA

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Photo 1: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking south from north-central area of the landfill. Photo shows 75-100% vegetation coverage in eastern 2/3rds of landfill cover.

JULY 2014

SEPTEMBER 2014:

Photo 2: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking south from central portion of the landfill cover. Small bare patch near middle of site.

JULY 2014

SEPTEMBER 2014:

Photo 3: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking west from central portion of the landfill.
Typical view west of center of site – low groundcover, occasional shrub, bare areas in the western 1/3rd of the landfill in the distance.

JULY 2014

SEPTEMBER 2014:

Photo 4: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking east, from the northern portion of the west edge of the landfill. Jute mesh in the northern portion of the western 1/3rd of the landfill is visible on the right side of the photo beyond the vegetated patch. Photo shows vegetation conditions in the western portion of the landfill after a dry year.

JULY 2014

SEPTEMBER 2014:

Photo 5: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking southeast at two 25 foot sections of jute mesh installed in the north portion of the western 1/3rd of the landfill

JULY 2014

SEPTEMBER 2014:

Photo 6: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking south from northwestern corner of landfill cover, adjacent to access road. Photo shows areas of vegetation cover and condition of access road.

JULY 2014

SEPTEMBER 2014:

Photo 7: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking south along central portion of west edge of landfill at a 100 foot section of jute mesh installed on the slope parallel to the access road.

JULY 2014

SEPTEMBER 2014:

Photo 8: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking south along southern portion of west edge of landfill cover. Photo shows condition of jute mesh and access road.

JULY 2014

SEPTEMBER 2014:

Photo 9: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking east from the south portion of west edge of landfill cover. Photo shows central and southern wattles and jute mesh. Note established vegetation in foreground is thinner after the dry summer.

JULY 2014

SEPTEMBER 2014:

SEPTEMBER 2014:

Photo 10: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking northwest at 30 foot section of jute mesh installed between central and southern sections of wattles. .

JULY 2014

SEPTEMBER 2014:

Photo 11: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking north, past the central straw wattle, in the direction of the west section of jute mesh. Photo shows the condition of the wattle, jute mesh, and the sheet flow drainage patterns.

JULY 2014

SEPTEMBER 2014:

Photo 12: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking north at east section of jute mesh located north of the central straw wattle.

JULY 2014

SEPTEMBER 2014:

Photo 13: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking east from south portion of west edge of the landfill cover. Photo shows western 1/3rd of the landfill cover.

JULY 2014

SEPTEMBER 2014

Photo 14: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking northeast from south portion of west edge of landfill cover. Photo shows condition of jute mesh.

JULY 2014

SEPTEMBER 2014:

Photo 15: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking east, along the southern edge of the landfill cover. July 2014 photo shows damp soils in the distance in the area adjacent to the tidal pond.

JULY 2014

SEPTEMBER 2014:

Photo 16: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking southeast, along the southern edge of the landfill cover.
July 2014 photo shows damp soils in the distance in the area adjacent to the tidal pond.
No damp soils were observed in this area during the September 2014 Inspection.

JULY 2014

SEPTEMBER 2014:

Photo 17: September 30, 2014 Pre-Rain Season Inspection

Compared with Post-Rain Season Inspection. Looking northeast, from the southwest corner of the landfill. Photo shows jute mesh, wattles, and vegetation conditions in the western portion of the landfill after a dry winter.

JULY 2014

SEPTEMBER 2014:

Photo 18: September 30, 2014 Pre-Rain Season Inspection
Iceplant patches in south-central portion of landfill after a dry year.

Western Patch

Eastern Patch

Photo 19: September 30, 2014 Pre-Rain Season Inspection

Fresh burrows observed in central portion of western 1/3rd of landfill.

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Post-Rain Inspection December 4, 2014

IRP Site 7 Landfill Inspection and Maintenance, NAVWPNSTA Seal Beach, CA

Photo 1: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking south from north-central area of the landfill. Photo shows 75-100% vegetation coverage in eastern 2/3rds of landfill cover. No ponding.

SEPTEMBER 2014

DECEMBER 2014

Photo 2: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking south from central portion of the landfill cover. Small bare patch near middle of site. No ponding.

SEPTEMBER 2014

DECEMBER 2014

Photo 3: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking west from central portion of the landfill.
Typical view west of center of site – low groundcover, occasional shrub, bare areas in the western 1/3rd of the landfill in the distance. No ponding.

SEPTEMBER 2014

DECEMBER 2014

Photo 4: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking east, from the northern portion of the west edge of the landfill. Three small ponds, including pond at location of jute mesh in the northern portion of the western 1/3rd of the landfill on the right side of the photo beyond the vegetated patch.

SEPTEMBER 2014

DECEMBER 2014

Photo 5: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Closer view of jute mesh and pond described in the previous photograph. Looking southeast at two 25 foot sections of jute mesh installed in the north portion of the western 1/3rd of the landfill.

SEPTEMBER 2014

DECEMBER 2014

Photo 6: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking south from northwestern corner of landfill cover, adjacent to access road. Photo shows areas of vegetation cover and condition of access road.

SEPTEMBER 2014

DECEMBER 2014

Photo 7: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking south along central portion of west edge of landfill at a 100 foot section of jute mesh installed on the slope parallel to the access road. No new erosion or flow lines were present.

SEPTEMBER 2014

DECEMBER 2014

Photo 8: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking south along southern portion of west edge of landfill cover. Photo shows condition of jute mesh and access road. No new erosion or flow lines were present.

SEPTEMBER 2014

DECEMBER 2014

Photo 9: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking east from the south portion of west edge of landfill cover. Photo shows central and southern wattles and jute mesh, small ponds in distance.

SEPTEMBER 2014

DECEMBER 2014

Photo 10: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking northwest at small pond and 30 foot section of jute mesh installed between central and southern sections of wattles.

SEPTEMBER 2014

DECEMBER 2014

Photo 11: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking north, past the central straw wattle, in the direction of the west section of jute mesh. Photo shows the drainage and ponding.

SEPTEMBER 2014

DECEMBER 2014

Photo 12: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking north at east section of jute mesh located north of the central straw wattle, and ponding south of the wattle.

SEPTEMBER 2014

DECEMBER 2014

Photo 13: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking east from south portion of west edge of the landfill cover.

Photo shows western 1/3rd of the landfill cover, ponding near the tidal area to the right on the south boundary, and ponding in the distance to the left on the west central margin of the landfill cover.

SEPTEMBER 2014

DECEMBER 2014

Photo 14: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking northeast from south portion of west edge of landfill cover towards ponding in the distance on the west central margin of the landfill cover.

SEPTEMBER 2014

DECEMBER 2014

Photo 15: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking east, along the southern edge of the landfill cover. December 2014 photo shows ponding in the distance in the area adjacent to the tidal pond.

SEPTEMBER 2014

DECEMBER 2014

Photo 16: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking southeast, along the southern edge of the landfill cover.

SEPTEMBER 2014

DECEMBER 2014

Photo 17: December 4, 2014 Post-Rain Inspection

Compared with Pre-Rain Season Inspection. Looking northeast, from the southwest corner of the landfill. Photo shows jute mesh, wattles, and vegetation conditions in the western portion of the landfill.

SEPTEMBER 2014

DECEMBER 2014

Photo 18: December 4, 2014 Post-Rain Inspection

Photo looking east at the largest pond, located on the central western margin of the landfill. Pond drains to the east at the location of the wattle in the center of the photo, then drains south along jute mesh and through wattles on the right side of the photo, then on to the tidal pond to the south.

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Post-Rain Inspection
May 20, 2015

IRP Site 7 Landfill Inspection and Maintenance, NAVWPNSTA Seal Beach, CA

Photo 1: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking south from north-central area of the landfill. Photo shows 75-100% vegetation coverage in eastern 2/3rds of landfill cover. No ponding.

DECEMBER 2014

MAY 2015

Photo 2: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking south from central portion of the landfill cover. Small bare patch near middle of site. No ponding.

DECEMBER 2014

MAY 2015

Photo 3: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking west from central portion of the landfill. Typical view west of center of site – low groundcover, occasional shrub, bare areas in the western 1/3rd of the landfill in the distance. No ponding.

DECEMBER 2014

MAY 2015

Photo 4: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking east, from the northern portion of the west edge of the landfill. No ponding.

DECEMBER 2014

MAY 2015

Photo 5: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking southeast at two 25 foot sections of jute mesh installed in the north portion of the western 1/3rd of the landfill. No ponding.

DECEMBER 2014

MAY 2015

Photo 6: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking south from northwestern corner of landfill cover, adjacent to access road. Photo shows areas of vegetation cover and condition of access road.

DECEMBER 2014

MAY 2015

Photo 7: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking south along central portion of west edge of landfill at a 100 foot section of jute mesh installed on the slope parallel to the access road. No new erosion or flow lines were present.

DECEMBER 2014

MAY 2015

Photo 8: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking south along southern portion of west edge of landfill cover. Photo shows condition of jute mesh and access road. No new erosion or flow lines were present.

DECEMBER 2014

MAY 2015

Photo 9: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking east from the south portion of west edge of landfill cover. Photo shows central and southern wattles and jute mesh. No ponding.

DECEMBER 2014

MAY 2015

Photo 10: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking northwest at 30 foot section of jute mesh installed between central and southern sections of wattles. No ponding.

DECEMBER 2014

MAY 2015

Photo 11: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking north, past the central straw wattle, in the direction of the west section of jute mesh. No ponding.

DECEMBER 2014

MAY 2015

Photo 12: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking north at east section of jute mesh located north of the central straw wattle. No ponding.

DECEMBER 2014

MAY 2015

Photo 13: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking east from south portion of west edge of the landfill cover. Photo shows western 1/3rd of the landfill cover. No ponding.

DECEMBER 2014

MAY 2015

Photo 14: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking northeast from south portion of west edge of landfill cover towards the west central margin of the landfill cover. No ponding.

DECEMBER 2014

MAY 2015

Photo 15: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking east, along the southern edge of the landfill cover. No ponding.

DECEMBER 2014

MAY 2015

Photo 16: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking southeast, along the southern edge of the landfill cover. No ponding.

DECEMBER 2014

MAY 2015

Photo 17: May 20, 2015 Post-Rain Inspection

Compared with Post-Rain Inspection Dec 2014. Looking northeast, from the southwest corner of the landfill. Photo shows jute mesh, wattles, and vegetation conditions in the western portion of the landfill.

DECEMBER 2014

MAY 2015

Photo 18: May 20, 2015 Post-Rain Inspection

Photo looking east at the central western margin of the landfill.

DECEMBER 2014

MAY 2015

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Post-Rainy Season Inspection July 23, 2015

IRP Site 7 Landfill Inspection and Maintenance, NAVWPNSTA Seal Beach, CA

Photo 1: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking south from north-central area of the landfill. Photo shows 75-100% vegetation coverage in eastern 2/3rds of landfill cover. No ponding.

JULY 2014

JULY 2015

Photo 2: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking south from central portion of the landfill cover. Small bare patch near middle of site. No ponding.

JULY 2014

JULY 2015

Photo 3: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking west from central portion of the landfill. Typical view west of center of site – low groundcover, occasional shrub, bare areas in the western 1/3rd of the landfill in the distance. No ponding.

JULY 2014

JULY 2015

Photo 4: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking east, from the northern portion of the west edge of the landfill. No ponding.

JULY 2014

JULY 2015

Photo 5: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking southeast at two 25 foot sections of jute mesh installed in the north portion of the western 1/3rd of the landfill. No ponding.

JULY 2014

JULY 2015

Photo 6: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking south from northwestern corner of landfill cover, adjacent to access road. Photo shows areas of vegetation cover and condition of access road.

JULY 2014

JULY 2015

Photo 7: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking south along central portion of west edge of landfill at a 100 foot section of jute mesh installed on the slope parallel to the access road. No new erosion or flow lines were present.

JULY 2014

JULY 2015

Photo 8: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking south along southern portion of west edge of landfill cover. Photo shows condition of jute mesh and access road. No new erosion or flow lines were present.

JULY 2014

JULY 2015

Photo 9: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking east from the south portion of west edge of landfill cover. Photo shows central and southern wattles and jute mesh. No ponding.

JULY 2014

JULY 2015

Photo 10: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking northwest at 30 foot section of jute mesh installed between central and southern sections of wattles. No ponding.

JULY 2014

JULY 2015

Photo 11: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking north, past the central straw wattle, in the direction of the west section of jute mesh. No ponding.

JULY 2014

JULY 2015

Photo 12: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking north at east section of jute mesh located north of the central straw wattle. No ponding.

JULY 2014

JULY 2015

Photo 13: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking east from south portion of west edge of the landfill cover. Photo shows western 1/3rd of the landfill cover. No ponding.

JULY 2014

JULY 2015

Photo 14: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking northeast from south portion of west edge of landfill cover towards the west central margin of the landfill cover. No ponding.

JULY 2014

JULY 2015

Photo 15: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking east, along the southern edge of the landfill cover. No ponding.

JULY 2014

JULY 2015

Photo 16: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking southeast, along the southern edge of the landfill cover. No ponding.

JULY 2014

JULY 2015

Photo 17: July 23, 2015 Post-Rainy Season Inspection

Compared with Post-Rainy Season Inspection July 2014. Looking northeast, from the southwest corner of the landfill. Photo shows jute mesh, wattles, and vegetation conditions in the western portion of the landfill.

JULY 2014

JULY 2015

Photo 18: July 23, 2015 Post-Rainy Season Inspection

Photo looking east at the central western margin of the landfill.

DECEMBER 2014 Post Rain Inspection

(Note: Not July 2014 like the other images)

JULY 2015

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