

APPENDIX E:  
HYDROLOGY DATA





### C.3 and C.6 Development Review Checklist

**Address** 600 Elm Street  
**Phone** 650-802-4263  
**Website** (www.cityofsancarlos.org)

**Project Information**

**I.A Enter Project Data** (For "C.3 Regulated Projects," data will be reported in the municipality's stormwater Annual Report.)

Project Name: Hilton Garden Inn Case Number: \_\_\_\_\_  
 Project Address & Cross Street: 1091 Industrial Drive and Brittan Avenue  
 Project APN: 046-151-060 Project Watershed: Pulgas Creek  
 Applicant Name: San Carlos HHG Hotel Development, LP Project Phase No. N/A  
 Applicant Phone: 972-510-1201 Applicant E-mail: \_\_\_\_\_

Development Type: (check all that apply)

- Single Family Residential: A stand-alone home that is not part of a larger project.
- Single Family Residential: Two or more lot residential development.<sup>1</sup> # of units: \_\_\_\_\_
- Multi-Family Residential # of units: \_\_\_\_\_
- Commercial
- Industrial, Manufacturing
- Mixed-Use # of units: \_\_\_\_\_
- Streets, Roads<sup>2</sup>, etc.
- Redevelopment<sup>3</sup> as defined by MRP: creating, adding and/or replacing exterior existing impervious surface on a site where past development has occurred.

**I.A.1**

- 'Special land use categories' as defined by MRP: (1) auto service facilities<sup>3</sup>, (2) retail gasoline outlets, (3) restaurants, (4) uncovered parking area (stand-alone or part of a larger project)
- Institutions: schools, libraries, jails, etc.
- Parks and trails, camp grounds, other recreational
- Agricultural, wineries
- Kennels, Ranches
- Other, Please specify Hotel

Project Description (Also not any past or future phases of the project.)<sup>4</sup> Construction of 7 story Type 1A hotel building and parking garage. Project will also include landscaping and underground infrastructure improvements.

**I.A.2** Total Area of Site: 1.6 acres  
**I.A.3** Total Area of land disturbed during construction : 1.6 acres **I.A.4** Site slope: 1% %  
 (include clearing, grading, excavating and stockpile area)

**I.A.5 Certification:**

I certify that the information provided on this form is correct and acknowledge that, should the project exceed the amount of new and/or replaced impervious surface provided in this form, the as-built project may be subject to additional improvements.

Attach Preliminary Calculations  Attach Final Calculations  Attach copy of site plan showing areas

Name of person completing the form: Mike Lesar Title: Civil Engineer  
 Signature: [Signature] Date: 3/3/2016  
 Phone Number: 408-727-6665 E-mail: mlesar@kierwright.com

1 Common Plans of Development (subdivisions or contiguous, commonly owned lots, for the construction of two or more homes developed within 1 year of each other) are not considered single family projects by the MRP.  
 2 Roadway projects creating 10,000 sq.ft. or more of contiguous impervious surface are subject to C.3 requirements if the roadway is new or being widened with additional traffic lanes.  
 3 See Standard Industrial Classification (SIC) codes here: [www.flowstobay.org/documents/business/new-development/Notice\\_to\\_Applicants-LID\\_FINAL.doc](http://www.flowstobay.org/documents/business/new-development/Notice_to_Applicants-LID_FINAL.doc)  
 4 Project description examples: 5-story office building, industrial warehouse, residential with five 4-story buildings for 200 condominiums, etc. 1/1/16 v.2

**I.B Is the project a “C.3 Regulated Project” per MRP Provision C.3.b?**

**I.B.1** Enter the amount of Impervious surface Retained, Replaced and/or Created by the project:

**Table I.B.1 Impervious<sup>5</sup> and Pervious Surfaces**

Type of Impervious Surface	I.B.1.a	I.B.1.b	I.B.1.c	I.B.1.d	I.B.1.e
	Pre-Project Impervious Surface (sq.ft.)	Existing Impervious Surface to be Retained <sup>6</sup> (sq.ft.)	Existing Impervious Surface to be Replaced <sup>6</sup> (sq.ft.)	New Impervious Surface to be Created <sup>6</sup> (sq.ft.)	Post-Project Impervious Surface (sq.ft.) (=b+c+d)
Roof area(s)	30,577	0	30,059	0	30059
Impervious <sup>5</sup> sidewalks, patios, paths, driveways, streets	6,281	0	1354	0	1354
Impervious <sup>5</sup> uncovered parking <sup>7</sup>	15,125	0	15125	16851	31976
Totals:	51983	0	46538	16851	63389
<b>I.B.1.f - Total Impervious Surface Replaced and Created:</b> (sum of totals for columns I.B.1.c and I.B.1.d):			<b>63389</b>		
Type of Pervious Surface	Pre-Project Pervious Surface (sq.ft.)				Post-project Pervious Surface(sq.ft.)
Landscaping	17617				6211
Pervious Paving	0	<b>I.B.1.e.1</b>			0
Green Roof	0				0
Totals:	17617				6211
Total Site Area (Total Impervious + Total Pervious)	69600				69600

**I.B.2** Please review and attach additional worksheets as required below using the Total Impervious Surface (IS) Replaced and Created in cell **I.B.1.f** from Table **I.B.1** above and other factors:

	Review Steps	Check One		Attach Worksheet
		Yes	No	
I.B.2.a	Does this project involve any earthwork? If YES, then Check Yes, and Complete Worksheet A. If NO, then go to I.B.2.b	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A
I.B.2.b	Is <b>I.B.1.f</b> greater than or equal to 2,500 sq.ft? If YES, then the Project is subject to Provision C.3.i. - complete Worksheets B, C & go to I.B.2.c. If NO, then Stop here - go to I.A.5 and complete Certification or ask municipal staff for Small Project Checklist.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B, C
I.B.2.c	Is the total Existing IS to be Replaced (column <b>I.B.1.c</b> ) 50 percent or more of the total Pre-Project IS (column <b>I.B.1.a</b> )? If YES, site design, source control and treatment requirements apply to the whole site. Continue to I.B.2.d If NO, these requirements apply only to the impervious surface created and/or replaced. Continue to I.B.2.d	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
I.B.2.d	Is this project a Special Land Use Category ( <b>I.A.1</b> ) and is <b>I.B.1.f</b> greater than or equal to 5,000 sq.ft? If YES, project is a C.3 Regulated Project. Fill out Worksheet D. Then continue to I.B.2.f. If NO, go to I.B.2.e	<input checked="" type="checkbox"/>	<input type="checkbox"/>	D
I.B.2.e	Is <b>I.B.1.f</b> greater than or equal to 10,000 sq.ft? If YES, project is a C.3 Regulated Project - complete Worksheet D. Then continue to I.B.2.f. If NO, then skip to I.B.2.g.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	D
I.B.2.f	Is <b>I.B.1.f</b> greater than or equal to 43,560 sq.ft? If YES, project may be subject to Hydromodification Management requirements - complete Worksheet E then go to I.B.2.g. If NO, then go to I.B.2.g.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	E
I.B.2.g	Is <b>I.A.3</b> greater than or equal to 1 acre? If YES, check box, obtain coverage under CA Const. General Permit & submit Notice of Intent to municipality - go to I.B.2.h. If NO, then go to I.B.2.h. For more information see: <a href="http://www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml">www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
I.B.2.h	Is this a Special Project or does it have the potential to be a Special Project? If YES, complete Worksheet F - then continue to I.B.2.i. If NO, go to I.B.2.i.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	F
I.B.2.i	Is this project a High Priority Site? (Determined by the Municipality. High Priority Sites can include those located within 100 ft. of a sensitive habitat, an Area of Special Biological Significance, a body of water, or <b>starting 7/1/16</b> on sites disturbing >=5,000 sq.ft. with slopes >=15% (see <b>I.A.4</b> ) [or per municipal criteria/map.] Subject to monthly inspections from Oct 1 to April 30.) If YES, complete section G-2 on Worksheet G - then continue to I.B.2.j. If NO, then go to I.B.2.j	<input type="checkbox"/>	<input checked="" type="checkbox"/>	G
I.B.2.j	For Municipal Staff Use Only: Are you using Alternative Certification for the project review? If YES, then fill out section G-1 on Worksheet G. Fill out other sections of Worksheet G as appropriate. See cell <b>I.B.1.e.1</b> above - Is the project installing 3,000 square feet or more of pervious paving? If YES, then fill out section G-3 on Worksheet G. Add to Municipal Inspection Lists (C.3 and C.3.h)	<input type="checkbox"/>	<input type="checkbox"/>	G

<sup>5</sup> Per the MRP, pavement that meets the following definition of pervious pavement is NOT an impervious surface. Pervious pavement is defined as pavement that stores and infiltrates rainfall at a rate equal to immediately surrounding unpaved, landscaped areas, or that stores and infiltrates the rainfall runoff volume described in Provision C.3.  
<sup>6</sup> “Retained” means to leave existing impervious surfaces in place; “Replaced” means to install new impervious surface where existing impervious surface is removed anywhere on the same property; and “Created” means the amount of new impervious surface being proposed which exceeds the total existing amount of impervious surface at the property.  
<sup>7</sup> Uncovered parking includes the top level of a parking structure.

## Worksheet A

### C6 – Construction Stormwater BMPs

**Identify Plan sheet showing the appropriate construction Best Management Practices (BMPs) used on this project:**

*(Applies to all projects with earthwork)*

Yes	Plan Sheet	Best Management Practice (BMP)
<input checked="" type="checkbox"/>	TBD	Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses.
<input checked="" type="checkbox"/>	TBD	Store, handle, and dispose of construction materials/wastes properly to prevent contact with stormwater.
<input checked="" type="checkbox"/>	TBD	Do not clean, fuel, or maintain vehicles on-site, except in a designated area where wash water is contained and treated.
<input type="checkbox"/>		Train and provide instruction to all employees/subcontractors re: construction BMPs.
<input checked="" type="checkbox"/>	TBD	Protect all storm drain inlets in vicinity of site using sediment controls such as berms, fiber rolls, or filters.
<input type="checkbox"/>		Limit construction access routes and stabilize designated access points.
<input checked="" type="checkbox"/>	TBD	Attach the San Mateo Countywide Water Pollution Prevention Program's construction BMP plan sheet to project plans and require contractor to implement the applicable BMPs on the plan sheet.
<input checked="" type="checkbox"/>	TBD	Use temporary erosion controls to stabilize all denuded areas until permanent erosion controls are established.
<input type="checkbox"/>		Delineate with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.
<input type="checkbox"/>		Provide notes, specifications, or attachments describing the following: <ul style="list-style-type: none"> <li>■ Construction, operation and maintenance of erosion and sediment controls, include inspection frequency;</li> <li>■ Methods and schedule for grading, excavation, filling, clearing of vegetation, and storage and disposal of excavated or cleared material;</li> <li>■ Specifications for vegetative cover &amp; mulch, include methods and schedules for planting and fertilization;</li> <li>■ Provisions for temporary and/or permanent irrigation.</li> </ul>
<input checked="" type="checkbox"/>	TBD	Perform clearing and earth moving activities only during dry weather.
<input checked="" type="checkbox"/>	TBD	Use sediment controls or filtration to remove sediment when dewatering and obtain all necessary permits.
<input checked="" type="checkbox"/>	TBD	Trap sediment on-site, using BMPs such as sediment basins or traps, earthen dikes or berms, silt fences, check dams, soil blankets or mats, covers for soil stock piles, etc.
<input checked="" type="checkbox"/>	TBD	Divert on-site runoff around exposed areas; divert off-site runoff around the site (e.g., swales and dikes).
<input checked="" type="checkbox"/>	TBD	Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.

## Worksheet B

### C3 – Source Controls

Select appropriate source controls and identify the detail/plan sheet where these elements are shown.

Yes	Detail/Plan Sheet No.	Features that require source control measures	Source Control Measures (Refer to Local Source Control List for detailed requirements)
<input checked="" type="checkbox"/>	TBD	Storm Drain	Mark on-site inlets with the words "No Dumping! Flows to Bay" or equivalent.
<input type="checkbox"/>		Floor Drains	Plumb interior floor drains to sanitary sewer [or prohibit].
<input type="checkbox"/>		Parking garage	Plumb interior parking garage floor drains to sanitary sewer. <sup>8</sup>
<input type="checkbox"/>		Landscaping	<ul style="list-style-type: none"> <li>■ Retain existing vegetation as practicable.</li> <li>■ Select diverse species appropriate to the site. Include plants that are pest- and/or disease-resistant, drought-tolerant, and/or attract beneficial insects.</li> <li>■ Minimize use of pesticides and quick-release fertilizers.</li> <li>■ Use efficient irrigation system; design to minimize runoff.</li> </ul>
<input type="checkbox"/>		Pool/Spa/Fountain	Provide connection to the sanitary sewer to facilitate draining. <sup>8</sup>
<input type="checkbox"/>		Food Service Equipment (non-residential)	Provide sink or other area for equipment cleaning, which is: <ul style="list-style-type: none"> <li>■ Connected to a grease interceptor prior to sanitary sewer discharge.<sup>8</sup></li> <li>■ Large enough for the largest mat or piece of equipment to be cleaned.</li> <li>■ Indoors or in an outdoor roofed area designed to prevent stormwater run-on and run-off, and signed to require equipment washing in this area.</li> </ul>
<input type="checkbox"/>		Refuse Areas	<ul style="list-style-type: none"> <li>■ Provide a roofed and enclosed area for dumpsters, recycling containers, etc., designed to prevent stormwater run-on and runoff.</li> <li>■ Connect any drains in or beneath dumpsters, compactors, and tallow bin areas serving food service facilities to the sanitary sewer.<sup>8</sup></li> </ul>
<input type="checkbox"/>		Outdoor Process Activities <sup>9</sup>	Perform process activities either indoors or in roofed outdoor area, designed to prevent stormwater run-on and runoff, and to drain to the sanitary sewer. <sup>8</sup>
<input type="checkbox"/>		Outdoor Equipment/ Materials Storage	<ul style="list-style-type: none"> <li>■ Cover the area or design to avoid pollutant contact with stormwater runoff.</li> <li>■ Locate area only on paved and contained areas.</li> <li>■ Roof storage areas that will contain non-hazardous liquids, drain to sanitary sewer<sup>8</sup>, and contain by berms or similar.</li> </ul>
<input type="checkbox"/>		Vehicle/ Equipment Cleaning	<ul style="list-style-type: none"> <li>■ Roofed, pave and berm wash area to prevent stormwater run-on and runoff, plumb to the sanitary sewer<sup>8</sup>, and sign as a designated wash area.</li> <li>■ Commercial car wash facilities shall discharge to the sanitary sewer.<sup>8</sup></li> </ul>
<input type="checkbox"/>		Vehicle/ Equipment Repair and Maintenance	<ul style="list-style-type: none"> <li>■ Designate repair/maintenance area indoors, or an outdoors area designed to prevent stormwater run-on and runoff and provide secondary containment. Do not install drains in the secondary containment areas.</li> <li>■ No floor drains unless pretreated prior to discharge to the sanitary sewer.<sup>8</sup></li> <li>■ Connect containers or sinks used for parts cleaning to the sanitary sewer.<sup>8</sup></li> </ul>
<input type="checkbox"/>		Fuel Dispensing Areas	<ul style="list-style-type: none"> <li>■ Fueling areas shall have impermeable surface that is a) minimally graded to prevent ponding and b) separated from the rest of the site by a grade break.</li> <li>■ Canopy shall extend at least 10 ft. in each direction from each pump and drain away from fueling area.</li> </ul>
<input type="checkbox"/>		Loading Docks	<ul style="list-style-type: none"> <li>■ Cover and/or grade to minimize run-on to and runoff from the loading area.</li> <li>■ Position downspouts to direct stormwater away from the loading area.</li> <li>■ Drain water from loading dock areas to the sanitary sewer.<sup>8</sup></li> <li>■ Install door skirts between the trailers and the building.</li> </ul>
<input type="checkbox"/>		Fire Sprinklers	Design for discharge of fire sprinkler test water to landscape or sanitary sewer. <sup>8</sup>
<input type="checkbox"/>		Miscellaneous Drain or Wash Water	<ul style="list-style-type: none"> <li>■ Drain condensate of air conditioning units to landscaping. Large air conditioning units may connect to the sanitary sewer.<sup>8</sup></li> <li>■ Roof drains from equipment drain to landscaped area where practicable.</li> <li>■ Drain boiler drain lines, roof top equipment, all wash water to sanitary sewer.<sup>8</sup></li> </ul>
<input type="checkbox"/>		Architectural Copper Rinse Water	■ Drain rinse water to landscaping, discharge to sanitary sewer <sup>8</sup> , or collect and dispose properly offsite. See flyer "Requirements for Architectural Copper."

<sup>8</sup> Any connection to the sanitary sewer system is subject to sanitary district approval.

<sup>9</sup> Businesses that may have outdoor process activities/equipment include machine shops, auto repair, industries with pretreatment facilities.

## Worksheet C

### Low Impact Development – Site Design Measures

**Select Appropriate Site Design Measures** (Required for C.3 Regulated Projects; all other projects are encouraged to implement site design measures, which may be required at municipality discretion.) Projects that create and/or replace 2,500 – 10,000 sq.ft. of impervious surface, and stand-alone single family homes that create/replace 2,500 sq.ft. or more of impervious surface, must include **one of Site Design Measures a through f** (Provision C.3.i requirements).<sup>10</sup> Larger projects must also include applicable Site Design Measures g through i. Consult with municipal staff about requirements for your project.

**Select appropriate site design measures and identify the Plan Sheet where these elements are shown.**

Yes	Plan Sheet No.	
<input type="checkbox"/>		a. Direct roof runoff into cisterns or rain barrels and use rainwater for irrigation or other non-potable use.
<input checked="" type="checkbox"/>	TBD	b. Direct roof runoff onto vegetated areas.
<input checked="" type="checkbox"/>	TBD	c. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
<input type="checkbox"/>		d. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
<input type="checkbox"/> <input type="checkbox"/>		e. Construct sidewalks, walkways, and/or patios with pervious or permeable surfaces. Use the specifications in the C3 Technical Guidance (Version 4.1) downloadable at <a href="http://www.flowstobay.org/newdevelopment">www.flowstobay.org/newdevelopment</a>
<input type="checkbox"/>		f. Construct bike lanes, driveways, and/or uncovered parking lots with pervious surfaces. Use the specifications in the C3 Technical Guidance (Version 4.1) downloadable at <a href="http://www.flowstobay.org/newdevelopment">www.flowstobay.org/newdevelopment</a>
		g. Limit disturbance of natural water bodies and drainage systems; minimize compaction of highly permeable soils; protect slopes and channels; and minimize impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies;
<input type="checkbox"/>		h. Conserve natural areas, including existing trees, other vegetation and soils.
<input type="checkbox"/>		i. Minimize impervious surfaces.

**Regulated Projects can also consider the following site design measures to reduce treatment system sizing:**

Yes	Plan Sheet No.	
<input type="checkbox"/>		j. Self-treating area (see Section 4.2 of the C.3 Technical Guidance)
<input type="checkbox"/>		k. Self-retaining area (see Section 4.3 of the C.3 Technical Guidance)
<input type="checkbox"/>		l. Plant or preserve interceptor trees (Section 4.1, C.3 Technical Guidance)

<sup>10</sup> See MRP Provision C.3.a.i.(6) for non-C.3 Regulated Projects, C.3.c.i.(2)(a) for Regulated Projects, C.3.i for projects that create/replace 2,500 to 10,000 sq.ft. of impervious surface and stand-alone single family homes that create/replace 2,500 sq.ft. or more of impervious surface.

**Worksheet D**

**C3 Regulated Project - Stormwater Treatment Measures**

Check all applicable boxes and indicate the treatment measure(s) included in the project.

**Yes**

<input type="checkbox"/> Attach Worksheet F and Calculations	Is the project a <b>Special Project</b> ? <sup>11</sup> If yes, consult with municipal staff about the need to evaluate the feasibility and infeasibility of 100% LID treatment. Indicate the type of non-LID treatment to be used, the hydraulic sizing method, and percentage of the amount of runoff specified in Provision C.3.d that is treated:  <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 35%;"><u>Non-LID Treatment Measures:</u></td> <td style="width: 35%;"><u>Hydraulic sizing method</u><sup>12</sup></td> <td style="width: 30%; text-align: right;"><u>% of C.3.d amount of runoff treated</u></td> </tr> <tr> <td><input type="checkbox"/> Media Filter</td> <td><input type="checkbox"/> 2.a    <input type="checkbox"/> 2.b    <input type="checkbox"/> 2.c</td> <td style="text-align: right; border-bottom: 1px solid black;">          % </td> </tr> <tr> <td><input type="checkbox"/> Tree well Filter</td> <td><input type="checkbox"/> 2.a    <input type="checkbox"/> 2.b    <input type="checkbox"/> 2.c</td> <td style="text-align: right; border-bottom: 1px solid black;">          % </td> </tr> </table>	<u>Non-LID Treatment Measures:</u>	<u>Hydraulic sizing method</u> <sup>12</sup>	<u>% of C.3.d amount of runoff treated</u>	<input type="checkbox"/> Media Filter	<input type="checkbox"/> 2.a <input type="checkbox"/> 2.b <input type="checkbox"/> 2.c	%	<input type="checkbox"/> Tree well Filter	<input type="checkbox"/> 2.a <input type="checkbox"/> 2.b <input type="checkbox"/> 2.c	%			
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<input type="checkbox"/> Tree well Filter	<input type="checkbox"/> 2.a <input type="checkbox"/> 2.b <input type="checkbox"/> 2.c	%											
<input type="checkbox"/>	Is the project using infiltration systems? The MRP no longer requires the use or analysis of the feasibility of infiltration, but infiltration systems are encouraged and may be beneficial depending on the project. Indicate the infiltration measures to be used, and hydraulic sizing method:  <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 35%;"><u>Infiltration Measures:</u></td> <td style="width: 35%;"><u>Hydraulic sizing method</u><sup>12</sup></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Bioinfiltration<sup>13</sup></td> <td><input type="checkbox"/> 1.a    <input type="checkbox"/> 1.b    <input type="checkbox"/> 2.c    <input type="checkbox"/> 3</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Infiltration Trench</td> <td><input type="checkbox"/> 1.a    <input type="checkbox"/> 1.b</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other (specify):</td> <td colspan="2" style="border-bottom: 1px solid black;"></td> </tr> </table>	<u>Infiltration Measures:</u>	<u>Hydraulic sizing method</u> <sup>12</sup>		<input type="checkbox"/> Bioinfiltration <sup>13</sup>	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b <input type="checkbox"/> 2.c <input type="checkbox"/> 3		<input type="checkbox"/> Infiltration Trench	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b		<input type="checkbox"/> Other (specify):		
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<input type="checkbox"/> Infiltration Trench	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b												
<input type="checkbox"/> Other (specify):													
<input type="checkbox"/>	Is the project harvesting and using rainwater? The MRP no longer requires the use or analysis of the feasibility of rainwater harvesting, but it rainwater harvesting and use is encouraged and may be beneficial depending on the project.  <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 35%;"><u>Rainwater Harvesting/Use Measures:</u></td> <td style="width: 35%;"><u>Hydraulic sizing method</u><sup>12</sup></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Rainwater Harvesting for indoor non-potable water use</td> <td><input type="checkbox"/> 1.a    <input type="checkbox"/> 1.b</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Rainwater Harvesting for landscape irrigation use</td> <td><input type="checkbox"/> 1.a    <input type="checkbox"/> 1.b</td> <td></td> </tr> </table>	<u>Rainwater Harvesting/Use Measures:</u>	<u>Hydraulic sizing method</u> <sup>12</sup>		<input type="checkbox"/> Rainwater Harvesting for indoor non-potable water use	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b		<input type="checkbox"/> Rainwater Harvesting for landscape irrigation use	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b				
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<input checked="" type="checkbox"/>	Is the project installing biotreatment measures? Indicate the measures to be used, and the hydraulic sizing method:  <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 35%;"><u>Biotreatment Measures:</u></td> <td style="width: 35%;"><u>Hydraulic sizing method</u><sup>12</sup></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Bioretention area</td> <td><input checked="" type="checkbox"/> 2.c    <input type="checkbox"/> 3</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Flow-through planter</td> <td><input type="checkbox"/> 2.c    <input type="checkbox"/> 3</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other (specify):</td> <td colspan="2" style="border-bottom: 1px solid black;"></td> </tr> </table>	<u>Biotreatment Measures:</u>	<u>Hydraulic sizing method</u> <sup>12</sup>		<input checked="" type="checkbox"/> Bioretention area	<input checked="" type="checkbox"/> 2.c <input type="checkbox"/> 3		<input type="checkbox"/> Flow-through planter	<input type="checkbox"/> 2.c <input type="checkbox"/> 3		<input type="checkbox"/> Other (specify):		
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<input checked="" type="checkbox"/> Bioretention area	<input checked="" type="checkbox"/> 2.c <input type="checkbox"/> 3												
<input type="checkbox"/> Flow-through planter	<input type="checkbox"/> 2.c <input type="checkbox"/> 3												
<input type="checkbox"/> Other (specify):													

A copy of the long term Operations and Maintenance (O&M) Agreement and Plan for this project will be required. Please contact the NPDES Representative of the applicable municipality for an agreement template and consult the C.3 Technical Guidance at [www.flowstobay.org](http://www.flowstobay.org) for maintenance plan templates for specific facility types.

<sup>11</sup> Special Projects are smart growth, high density, or transit-oriented developments with the criteria defined in Provision C.3.e.ii.(2), (3) or (4) (see Worksheet F).

<sup>12</sup> Indicate which of the following Provision C.3.d.i hydraulic sizing methods were used. Volume based approaches: 1(a) Urban Runoff Quality Management approach, or 1(b) 80% capture approach (recommended volume-based approach). Flow-based approaches: 2(a) 10% of 50-year peak flow approach, 2(b) 2 times the 85th percentile rainfall intensity approach, or 2(c) 0.2-Inch-per-hour intensity approach (recommended flow-based approach - also known as the 4% rule). Combination flow and volume-based approach: 3.

<sup>13</sup> See Section 6.1 of the C.3 Technical Guidance for conditions in which bioretention areas provide bioinfiltration.



**Worksheet E**  
**Hydromodification Management**

**E-1 Is the project a Hydromodification<sup>14</sup> Management (HM) Project?**

E-1.1 Is the total impervious area increased over the pre-project condition?

- Yes. Continue to E-1.2  
 No. The project is NOT required to incorporate HM Measures. Go to Item E-1.4 and check "No."

E-1.2 Is the site located in an HM Control Area per the HM Control Areas map (Appendix H of the C.3 Technical Guidance)?

- Yes. Continue to E-1.3  
 No. Attach map, indicating project location. The project is NOT required to incorporate HM Measures. Skip to Item E-1.4 and check "No."

E-1.3 Has an engineer or qualified environmental professional determined that runoff from the project flows only through a hardened channel or enclosed pipe along its entire length before emptying into a waterway in the exempt area?

- Yes. Attach map of facility. Go to Item E-1.4 and check "Yes."  
 No. Attach map, indicating project location. The project is NOT required to incorporate HM Measures. Skip to Item E-1.4 and check "No."

E-1.4 Is the project a Hydromodification Management Project?

- Yes. The project is subject to HM requirements in Provision C.3.g of the Municipal Regional Stormwater Permit.  
 No. The project is EXEMPT from HM requirements.

► If the project is subject to the HM requirements, incorporate in the project flow duration control measures designed such that post-project discharge rates and durations match pre-project discharge rates and durations.

► The Bay Area Hydrology Model (BAHM) has been developed to help size flow duration controls. See [www.bayareahydrologymodel.org](http://www.bayareahydrologymodel.org). Guidance is provided in Chapter 7 of the C.3 Technical Guidance.

**E-2 Incorporate HM Controls (if required)**

Are the applicable items provided with the Plans?

Yes	No	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Site plans with pre- and post-project impervious surface areas, surface flow directions of entire site, locations of flow duration controls and site design measures per HM site design requirement
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Soils report or other site-specific document showing soil type(s) on site
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If project uses the Bay Area Hydrology Model (BAHM), a list of model inputs and outputs.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If project uses custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves), goodness of fit, and (allowable) low flow rate.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If project uses the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM project (name, location, date of start up, entity responsible for maintenance).
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If the project uses alternatives to the default BAHM approach or settings, a written description and rationale.

<sup>14</sup> Hydromodification is the change in a site's runoff hydrograph, including increases in flows and durations that results when land is developed (made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion of receiving streams, loss of habitat, increased sediment transport and/or deposition, and increased flooding. Hydromodification control measures are designed to reduce these effects.

